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A

BRIEF NARRATIVE

OF

AN UNSUCCESSFUL ATTEMPT

TO REACH

REPULSE BAY,

THROUGH

SIR THOMAS ROWE'S "WELCOME,"

IN

HIS MAJESTY'S SHIP GRIPER,

IN THE YEAR

MDCCCXXIV.

84860
a

BY CAPTAIN G. F. LYON, R.N.

WITH A CHART AND ENGRAVINGS.

LONDON:

JOHN MURRAY, ALBEMARLE-STREET.

MDCCCXXV.

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LONDON:
PRINTED BY WILLIAM CLOWES,
Northumberland-court.

PREFACE.

In order that the object, and a few other particulars, of my voyage towards Repulse Bay, may be fully understood to my readers, I venture to solicit their attention to a short preface, which is intended to explain such circumstances as are essential to those who do me the honour of perusing my journal.

It may be remembered that in Captain Parry's second, or last, voyage, sufficient reasons are advanced, to favour the supposition that a Western portion of the Polar Sea, lies at no great distance across Melville Peninsula from Repulse Bay, and that

all the Esquimaux agree in placing it at three days' journey.

Should this be the case, of which I believe no doubt is entertained, the water in question may be inferred to join that sea, which opens out from the western mouth of the Strait of the Fury and Hecla, and the form of the Peninsula may be tolerably imagined from the charts drawn by the natives.

A bight may therefore exist as far to the southward as Akkoolee, which is the opposite shore from Repulse Bay; and it certainly would be an object of great interest to trace the connexion of its shores, with Point Turnagain, at which Captain Franklin's operations terminated.

For this purpose Earl Bathurst did me the honour of employing me, and my

Lords Commissioners of the Admiralty, furnished His Majesty's Ship Griper, for the purpose of carrying me to Repulse Bay.

It was intended that I should winter there, and in the spring of 1825, I was to proceed with a small party across Melville Peninsula, and endeavour to trace the shores of the Polar sea, as far as the above-mentioned point. For the better accomplishment of this service, an adequate supply of warm clothing, instruments, sledges, &c., were provided, and two boats, to be covered with water-proof canvas, were carried out in frame.

The crew of His Majesty's Ship Griper were as follows :

Captain	1
Lieutenants . . .	2
Carried forward .	3

Brought forward . . .	3
Purser	1
Assistant Surveyor . .	1
Midshipman . . .	1
Assistant Surgeon . .	1
Gunner	1
Petty Officers . . .	7
Corporal of Marines . .	1
Able Seamen . . .	25
Total .	41

The Griper was a gun brig of one hundred and eighty tons, which had been considerably strengthened and raised upon, to accompany Captain Parry on his first voyage, under the command of Lieutenant now Captain Liddon. Every comfort, in food and other necessaries, was most liberally provided for us, and Sylvester's stove was fitted in the hold, in the same manner as in Captain Parry's vessels.

I have given a reduced chart of our route, in order to point out the errors of former ones; and I am happy in here

having an opportunity of thanking Mr. E. N. Kendall, assistant-surveyor, for the very able way in which he has assisted me with his observations, and in the plan of our route. Mr. Edward Finden, by whom the plates are engraved, has obligingly presented me with some etched outlines, copied from sketches which I made of a few of our acquaintance on the last voyage, and I have here taken the liberty of introducing them, as they give some idea of the cast of the Esquimaux countenance.

To Professor Barlow I beg to return my thanks for the interesting paper in the appendix, on the observations which Mr. Kendall and myself were enabled to make on the magnetic errors of our compasses; and I am no less indebted to Dr. Hooker of Glasgow, for his valuable communication on the few plants which I procured in three short visits to the shore.

I purposed adding to the appendix, a copy of our meteorological journal, but it has been registered on so extensive a scale that it would be too much to insert in this small volume. For the farther information of my readers, I have inserted copies of my instructions from the Admiralty and Earl Bathurst.

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OFFICIAL INSTRUCTIONS.

By the Commissioners for Executing the Office of Lord High Admiral of the United Kingdom of Great Britain and Ireland, &c.

YOU are hereby required and directed to put to sea, on the 10th instant, with the sloop you command, in company with the Snap, surveying vessel, whose Commander has been placed by us under your orders; and to proceed with all convenient expedition towards Hudson's Straits, until you reach the ice, or arrive off Cape Chidley, when you are to receive into the Griper, from the Snap, the articles that vessel is to carry out for you; and you are then to order the Lieutenant of the Snap to part company, and proceed to Newfoundland, according to his former orders, and no longer to consider himself under your command. And you will send by the Snap

an account of your proceedings to the day of her parting company from you.

You are afterwards to take such route as you may deem best for reaching Repulse Bay, or Wager River; and you are to place the Griper in security, in either of the said places, which you may find from circumstances best calculated for the purpose, with reference to the duties you have to perform under the instructions you will receive from Earl Bathurst, one of His Majesty's principal Secretaries of State.

Having so placed the Griper in security, you are to proceed yourself, with those destined to accompany you in the execution of the said instructions from the Secretary of State, leaving the Griper, during your absence, in charge of Lieutenant Francis Harding.

Having executed the duty you are charged with by the Secretary of State, you are to lose no time in returning to England in the Griper; reporting your arrival to our Secretary for our information.

You are to leave instructions with Lieutenant Harding for his guidance during your absence in America; and you are to give him directions regarding his even-

tually leaving the coast, and returning in the Griper to England, should circumstances induce you to take any any other route homewards, or prevent your rejoining him within a certain period, as to the limit of which, you, at the time of your departure, will be the best judge.

Given under our hands the 7th June, 1824.

MELVILLE.
G. COCKBURN.

By Command of their Lordships,

J. W. CROKER.

To Captain GEO. F. LYON, *Commanding His Majesty's Sloop Griper, at Deptford.*

Downing-Street, 8th June, 1824.

SIR,

HAVING submitted your name to His Majesty, as a fit person to be employed in the examination of the eastern part of the North Coast of North America, from the Western Shore of Melville Peninsula to the point where Captain Franklin's late journey terminated; and the Lords Commissioners of the Admiralty having appointed you to the command of His Majesty's ship Griper, to enable you to execute this service, and with orders to proceed to the most convenient spot for commencing your operations; and their Lordships having, moreover, informed me of the perfect readiness of the said ship to proceed, I am to desire that you will lose no time in putting to sea according to their orders, and proceeding to the place or places therein pointed out; on your arrival at which, if the season and state of the weather will admit, you are to endeavour, with a party,

to cross the Melville Peninsula, and examine that part of the coast of the Polar Sea, where your researches in the following spring are to commence, in order that from the state of the ice, or other circumstances, you may take measures during the winter to be perfectly prepared to prosecute your journey, either by land or water, to the ultimate object of your destination.

Having made your previous observations as above-mentioned, and the necessary preparations which they may have suggested, you are, in the following spring of the year, to proceed with such a number of men as you may deem requisite, and with such boats, provisions, and stores, as you may be able with convenience to carry, to cross the Peninsula a second time, and proceed westerly by land, or by water, as circumstances may admit, until you shall arrive at Point Turn-again, stopping as little as possible on your route thither, in order that you may have the more time in the favourable season, for making observations on your return, when you will endeavour to ascertain, as correctly as your means will allow, the latitudes and longitudes of the various headlands, inlets, islands, *&c.*, which may occur in the line of your route.

" It will be exceedingly desirable that, in the course of this journey, you should, not only yourself, but also those who accompany you, collect all such observations on the tides, currents, state of the ice, and other particulars, as may be useful to geography, and the navigation of the coast along which you are about to proceed, as well as to science in general; and you are also to collect as many specimens of natural history, in its various departments, as you shall have the means of carrying along with you; and to make accurate drawings of such objects as may not, from their magnitude, be capable of being brought away.

You are to use every means in your power for protecting the people engaged with you in this enterprise, against any hostility of such natives as you may fall in with, and be careful not unnecessarily to expose them to the severity of the weather, using such means as are within your reach for preserving their health, during the continuance of the land journey. And having returned from the Expedition, and rejoined His Majesty's ship Griper, you are then to consider yourself under the orders of the Lords Commissioners of the Admiralty, and govern your further proceedings accordingly. I transmit for your further information, Extracts of the In-

structions which have been given to Captain Parry for his guidance on the Expedition to which he has been appointed.

I am, Sir,

Your most obedient

humble Servant,

BATHURST.

Captain LYON, R.N.

AN

UNSUCCESSFUL ATTEMPT TO REACH

REPULSE BAY,

BY

SIR THOMAS ROWE'S WELCOME.

ON Thursday, June 10th, 1824, at eight A.M., the Earl of Liverpool steam-vessel took us in tow, and, leaving our hulk at Deptford, at three P.M., we anchored at Greenhithe. 1824. June.

On the 11th, Professor Barlow, for whom we had waited at Greenhithe, came on board, and fitted his plate for correcting the compasses from the effects of local attraction. On the 12th we weighed, and working down the river, anchored at night in Lee Roads. Weighing at day-light on the 13th, we reached the Little Nore at noon, and found lying there his majesty's surveying-vessel, Snap, Lieut. F. Bullock, who having taken on board a portion of our stores, in consequence of the

1824. June. Griper having been found too deeply laden to cross the Atlantic, was to accompany us to the entrance of Hudson's Strait, whence she would afterwards proceed to Newfoundland. On the 16th Commissioner Cunningham arrived from Chatham, and the ship's company received their river pay, with three months' advance; when, having provided themselves with such a portion of warm clothing as my former experience in the Polar seas caused me to insist on their purchasing, and having sent their wives on shore, at four P.M. we weighed in company with the Snap, and made sail for the Swin. We now found that being in salt water, the ship drew sixteen feet one inch abaft, and fifteen feet ten inches forward. At night-fall his majesty's ship Brisk passed, and Captain Hope honoured us with three cheers, informing me at the same time that Captain Parry had passed through the Pentland Frith. We anchored off the buoy of the Mouse, and were detained until daylight of the 18th, by a strong north-east wind. It then moderated from the northward, and we weighed.

On the morning of the 19th the wind veered to the southward, and we had a tolerably good run until thirty minutes after seven,

A.M., when we anchored in Yarmouth roads until ten A.M., for the purpose of exchanging our pilot. We then weighed and ran through the Cockle Gat. From Yarmouth I informed their lordships of our proceedings up to this date. 1824. June.

We had arrived off Scarborough by the afternoon of the 20th, when the wind fell, and it was not until the forenoon of the 22d, that we came abreast of Whitby.

At daylight of the 23d, being off Shields, we discharged the pilot, by whom I sent a letter to the Secretary of the Admiralty. Light airs and calms, with fogs and rain, detained us here until noon of the 26th; and as a constant and heavy ground swell continued during the whole of this time, I was sorry to observe that the Griper, from her great depth and sharpness forward, pitched very deeply. During our delay several looms and puffins which were very numerous, were killed, and in a little excursion for the purpose of trying my Esquimaux canoe, one of the officers was upset in it, and very narrowly escaped drowning, as he was much exhausted by his endeavours to extricate himself, before we could come to his assistance in the attendant boat. With a moderate breeze from the east-

1824. June. ward, we again made some progress, and on the afternoon of the 28th came in sight of the Caithness shore, near Noss Head. As the breeze appeared likely to continue, I ordered Lieutenant Bullock to proceed with all despatch to Stromness, that the supplies which we required might be prepared against our arrival; and the better to accomplish this, Mr. Manico accompanied him, charged with a commission to purchase two strong Shetland ponies which we purposed taking out on trial. Off Noss Head we procured a pilot in the evening, and with the wind from the south-eastward crossed the mouth of Sinclair's Bay. We had not however ran above four miles from the Head, when a thick fog set in, and the wind being on shore, with the tide running strong to the northward, we hauled off to avoid being set down on the Pentland Skerries.

Having made an offing, until by the pilot's account of the set of the tide, we could weather the Head, we again stood in-shore; but a heavy swell, through which the ship made no way, and a light air, rendered her quite unmanageable; and the tide having turned, we were carried right for the Head; for at ten P.M. we obtained soundings in twenty-five fathoms, and saw the shadow of the cliff

close above us, while at the same moment the breakers were seen and heard under our bows. 1824. June.

Our next cast gave us four fathoms, but most opportunely a flaw of wind came edging round the rock, and we were fortunate in staying the ship, and just clearing her of the reef. Guided by the sound of the breakers, and our hand leads, we succeeded in running into an anchorage in fifteen fathoms, apparently sheltered by some part of the high land. As Sinclair's Bay is the only place affording anchorage along a great extent of this most precipitous coast, we were most thankful for our security. I cannot pass over the circumstances of this escape without deploring the extreme ignorance of the pilots for this part of the coast; ours, for instance, not having any idea of our situation when anchored, and having been most positive that the set of the tide, with which he declared himself perfectly acquainted, could not possibly sweep us near the head, on the course we had been steering.

On the forenoon of the 29th the fog cleared, and we found ourselves about three cables' length from the land, and near the ruins of two fine old castles of the Sinclairs,

1824. June. which were built on the steep edge of the cliff. At one P.M., a change of wind having taken place, we weighed, and ran with the ebb for the Pentland Firth; but being unable in a stiff breeze, and with studding-sails set, to get above four knots out of the ship, which was twice whirled round in an eddy, from which we could not escape, we lost the tide, and in consequence did not arrive at Stromness until one A.M. of the 30th. We found that the Snap, having been carried out from the Firth to sea in the fog, had only arrived on the preceding evening.

As refreshments were not to be procured at Stromness, the Hudson's Bay ships, which sailed as late as the 29th of June, having purchased all that were on hand, I sent Lieutenant Manico to Kirkwall, for the purpose of ordering a supply of beef, vegetables, *&c.*; and also to purchase the ponies.

In the mean time a boat was hired for bringing water to the ship, which I found would detain us some time, a drought of three months' continuance having rendered it so scarce, that our only place of supply was from a very small rill, yielding about two tons a day. The towns-people, in consequence of this great scarcity, had for some time been under

the necessity of sending to the ponds in the fields for water, and groups of girls bearing tubs, slung on two poles, were constantly seen passing along the pathways. On Mr. Manico's return he was accompanied by the Baron d'Ende, Chambellan de S. M. le Roi de Saxe; who was making the tour of the Orkneys, and to whom I paid every attention in my power. 1824 June

Accompanied by two of the officers, I walked into the country to see some Druidical remains, situated at Stenhouse, about six or seven miles from the town, and on the borders of an extensive lake, which communicates at high water with the sea. The first of these remarkable monuments consisted of three flat slabs of sandstone, standing upright, and from ten to fifteen feet in height. One entire slab lay flat on the ground, and I afterwards heard that it had been intentionally thrown down by some ardently inquisitive antiquary, to ascertain how deeply it had been embedded in the earth; but he was afterwards unable to place it as it was before, to the great chagrin of some of the old Orkney women, who hold these ruins in great reverence. The fallen stone had been embedded two feet and a half, and the space in which the four had stood was

1824. July. surrounded by the still visible remains of a mound, about thirty yards in diameter. It would appear that the slabs were procured from the neighbouring lake, as its bottom was of sand stone, lying split in long flat fragments. About a mile and a half beyond this place is a gently rising little hill, on which are five or six large and perfectly conical tumuli; and also a circular space of about one hundred and twenty yards diameter, surrounded by a ditch. Within this enclosure were a quantity of the same upright slabs of stone as the first we saw, and ranged round its inner limits. On one side of the circle many were wanting, but on the southern verge several yet stood, and in one part six were together.

From some Stromness people I learnt that there were several other Druidical remains on the island, but that one of the most perfect circles of upright slabs had been rooted up by a sacrilegious farmer, for the purpose of adding their small scite to his already extensive cultivated grounds.

Returning homewards, we made several ineffectual attempts at various little huts to procure something to eat, but all the inmates declared they had nothing better than meal and water to offer us.

At length, however, we made acquaintance with an old woman, who took us into her smoky cabin, and laid before us abundance of roasted eggs, roasted potatoes, bannocks, butter, and milk, while her husband produced his "ain wee bottle," from which he poured us some excellent whiskey. The old gentleman, who called himself a farmer, had several acres under cultivation, but the hut in which "Christy" and he lived, was most miserable and dirty, having no light but through the smoke-hole in the roof. 1824. July.

While the good farmer stood declaiming before us on his visit to London many years ago, we could not but admire his costume, consisting of sufficiently ill-assorted articles of various colours; and he had completed the array of his outward man by wearing a *red* wig, which had been cropped or rather notched, over a dark shock head of hair, which peeped like a fancy fringe from beneath the boundaries of this supplemental covering. The ground of our friend was well tilled, as indeed were all the other fields through which we passed, but the corn was only yet in blade.

On the 2d of July we hoisted in two very powerful little ponies, which Mr. Manico had procured, as a great favour, at Kirkwall; for

1824. July. they were the only two on the island, and had been sent from a Shetland to an Orkney laird. "Hecla" was forty inches in height, and "Griper," who weighed two hundred and forty-two pounds, thirty-eight; but both animals were extremely well formed, and only four years old. We also completed on this day the purchase of our live stock for sea, and the Snap carried out a fat cow and eight sheep, as fresh provisions for our crew.

At three A.M. on the 3d, we weighed with the wind fresh from the north-east, and in company with the Snap ran out at Hoy Mouth, and discharged our pilots, by whom I addressed a letter to their lordships, informing them of our proceedings up to this date. Being now fairly at sea, I caused the Snap to take us in tow, which I had declined doing as we passed up the east coast of England, although our little companion had much difficulty in keeping under sufficiently low sail for us, and by noon we had passed the Stack Rock.

With the wind north easterly, we lay our course until noon of the 9th, during which time the Snap was of the greatest assistance, the Griper frequently towing at the rate of five knots, in cases where she would not have

gone three. The wind now came round to the north-west, and we unwillingly cast off from the Snap. Lieutenant Bullock now informed me that our cow refused to eat, and much against my inclination, her death-warrant was signed, for I had wished if possible to have kept her until we reached the ice, when the cold would probably have preserved her flesh until Christmas, a period at which I knew from good experience that a piece of roasted beef would be highly acceptable. Our ponies proved much better sailors than the poor cow, for having now become accustomed to the motion of the ship, they walked about the decks as familiarly as large dogs, and even improved daily in appearance. 1824. July.

During the 10th, 11th, and 12th, we made but little progress, owing to a heavy rolling sea, through which the Griper made no way. The wind continued from the north-west, and rain, with hazy weather, was prevalent. On the evening of the 12th, the wind came round from the south-eastward, and the swell went down.

We were now frequently in the habit of witnessing a phenomenon which I do not remember to have so often observed in my former passage across this part of the Atlantic,

1824. July. which was, that the clouds near the horizon were constantly rising in clearly defined and widely-extended arches, being within their bounds far more luminous, and of different colours from any other parts of the heavens; and as we sometimes saw three or four of these remarkable bows at the same instant in different quarters, it is evident that locality has no influence in their formation.

The 13th was a fine dry day, and we examined our bags of pemmican, when to my great mortification I found that the fat which formed a part of this provision, had melted, or decomposed the caoutchouc which was used as a water-proof composition in the fabrication of the bags; and in a clammy state it had oozed through the canvass, and rendered it pervious to water. I now issued an entire suit of warm clothing (a gratuity from Government) to each officer and man.

Early on the 14th, the wind having again come fair, the Snap took us in tow, but it freshened to a gale by evening, when we cast off.

At day light of the 15th, the wind veered round and blew a strong north-wester, with a short-breaking sea. It moderated by the evening.

On the forenoon of the 16th, the Snap came and took us in tow, but at noon on the 17th strong breezes and a heavy swell obliged us again to cast off. We scudded while able, but our depth in the water caused us to ship so many heavy seas, that I most reluctantly brought-to under storm stay-sails. This was rendered exceedingly mortifying, by observing that our companion was perfectly dry, and not affected by the sea. The wind moderated at night, but continued fresh with a heavy swell all the 18th, on the evening of which day a thick fog set in, and continued until late on the 19th, when the Snap again took us in tow. During the blowing weather we saw many flocks of cape-hens sitting unconcernedly on the water, with their heads to the wind. We had a tolerable run until ten P.M. on the 20th, when, in a dense fog, we cast off. Thick weather, with rain and fogs, had now become so prevalent, that I judged it no longer prudent to keep the Snap a-head of us, unless we had a clear sight of the horizon, as on the event of her coming suddenly on a pack of ice, she might have received considerable injury. 1824. July.

On the 21st the wind veered to the north-west, whence it blew hard for a few hours; and

1824. July. in the course of the day we had rain and fog, during which the wind moderated, but at night it freshened again. We lay-to under close-reefed main-topsail until midnight of the 22d, when the wind fell, and, as the 23d was light and variable, I took advantage of the smooth water to receive all our leaden shot, spars, and small stores, from the Snap.

The calm weather continued until noon of the 24th, when the wind came round fresh from the southward, and the Snap again took us in tow; but at three, having carried away her main-topmast, she cast off.

On the morning of the 25th, the wind gradually moderated to a calm, with a long rolling sea. Heavy rain had fallen for about eight hours during the early part of the day, but in the evening the sky gradually cleared up, with that transparent brightness so peculiar to the Polar regions. At sunset it presented a most beautiful appearance. In the north-west was an arch, whose bases were from east to north-west, where its extremity joined a second bow, stretching to the south-south-east. That to the north-west was topped by clouds of the most vivid orange colour, shaded with deep purple, in long waving, but curved, bands; and below these

A REMARKABLE SUNSET.

gleamed forth the clear blue sky, which, as it approached the horizon, blended into soft green, rose-colour, and lake. In the bluest part of these bright heavens, small clouds resembling streamers of white floss silk, floated with the most airy lightness, while near the horizon were a quantity of long black streaks, in solid masses; behind which the sun was setting. One round blood-coloured spot marked its position, and the base of the dark cloud immediately above it, was bordered with the most brilliant scarlet, while the reflection from the sun on the long-rolling sea, imparted to it a deep purple tinge. 1824. July.

A singular change took place where the two arches joined; as that to the eastward was of a pure rose-colour, packed, band above band, the divisions of which were distinguished by a dull pink streak*.

The night was mild and foggy. The wind continued moderate from the southward all

* The faint description I have endeavoured to give of a scene, which delighted and astonished me, may bear testimony in favour of the singularly beautiful painting of "A Sunset at Sea after a Storm," by F. Danby, exhibited last year, and which by many connoisseurs was considered as quite unnatural, but it bore a most close resemblance to many sunsets which I have seen in the Polar regions.

1824. August. the 26th, and the day was so obscure, that we kept company with the Snap by guns and bells. In the evening we passed a piece of drift fir, about six feet in length, and apparently much decayed.

The early part of the 27th was moderate, but the wind increased to a hazy southerly gale by midnight. This continued until noon of the 28th, when it broke, and we again made sail. A number of looms, and a few stormy peterels were seen.

With the assistance of the Snap, we made some progress during the 29th, on which night the aurora was faintly visible.

The wind on the 30th varied from fine in the morning to a north-west gale at night, but it moderated on the forenoon of the 31st; and at night increased from the south.

The morning of the 1st of August was thick and foggy, with rain; at ten A.M. we discovered through the haze our first piece of ice, a small berg of about seventy feet. We soon passed this and several others, but saw no floe or brash ice, although there was every reason to suppose that a pack was near, from the sudden smoothness and change of temperature in the water, now at 32°, while the air was only at 34°. Repeated observa-

tions of this kind have now brought to a certainty the assertion, that the approach to ice from an open sea, may be ascertained by the sudden changes of the thermometer; and acting from past experience, I caused the most attentive look-out to be kept, on observing it to fall suddenly on this morning. Yet this change first took place in a very thick fog, and we ran about ten miles before the ice was seen. 1824. August.

Although the bergs now discovered were of no considerable size, yet they were the first seen by the officers, none of whom had been out before; and, notwithstanding a cold rain fell heavily, every one exerted himself to sketch such masses as struck his fancy, as head-pieces for his letters to England.

A strong ripple of current was observable in eddies on the smooth surface of the sea, and to all appearance it was setting due south. Having ran about thirty miles from noon, the weather cleared in the evening, and we discovered the coast of Labrador very distant, and extending from w.b.s.½s. to s.½w. This inhospitable land was extremely high and rugged, and its immense valleys were still partly filled with snow. The summits exhibited a remarkable tendency to form themselves into pinnacles, which soared far above the more rounded masses of rock

1824. August. lying near them. The night was light and calm, and I took advantage of this, to receive some more of our stores from the Snap, by employing the watch on deck. I could indeed have removed every thing; but as the sea was perfectly clear of ice, and the weather had the appearance of continuing fine, I determined not to finish clearing her until we should arrive off Cape Chidley, as I might have an opportunity of ascertaining its true position before she parted. The event, however, proved that I had judged too hastily.

A light breeze on the morning of the 2d, enabled us to run along the land, and at noon we were surprised to find ourselves only in lat. 59° 24′ 38″, the longitude by the mean of six chronometers being 62° 40′ 9″.

Hence it was evident that during the two preceding days and nights we had been driven considerably to the southward, and had been exposed to the united force of the strong currents from Hudson's as well as Davis' Straits. This is a strong argument against any vessel which is intending for Hudson's Strait, making the land from the southward; but as my instructions left this to my option, and I was very anxious to establish the position of Cape Chidley, I resolved to

make for it in preference to Resolution Island. At all events my having done so has answered one good end, by proving that the old established custom of making the latter is by far the best*. 1824. August.

In the evening we passed a straight piece of drift fir, about sixteen feet in length, and apparently quite sound. On this day the crow's nest was fitted at the mast head, and the spike plank crossed. A boom foresail was also bent, and every preparation made for navigating amongst ice. We ran N.W.bN. all the night, in the course of which a few pieces of ice were seen.

The wind freshened from the southward on the morning of the 3d, and heavy rain set in for the day. We passed several bergs and a quantity of tangle weed, and at thirty minutes after nine, A.M., came to a pack of loose decayed ice. Shortening sail we entered it, the Snap, for her better protection, following close in our wake. Having passed this, we soon

* On my homeward passage I was enabled, from several very satisfactory observations, to discover a far greater and more important cause for my having made so much southing, which was the disproportionate increase of deviation with the ship's head to the westward, to be found more fully stated in the Appendix.

1824. August. arrived at heavier pieces, through which as there was no way of avoiding them, owing to the thickness of the weather, we also made our way. In the evening we came to some large flat ice, and as the weather was very thick, I looked out most anxiously for a safe floe, by which to hang the ships, but was unsuccessful.

I had experienced considerable anxiety in consequence of the unavoidably dangerous situation of the Snap throughout the day, but having at length arrived in a "hole of water," we lay to, and I had the satisfaction of learning from Lieutenant Bullock, that she had received no other injury than the loss of a little copper from the bows. I now determined on receiving our stores, and a spare bower anchor, which we accomplished in a few hours; but to give some idea of the weather in which this was performed, it will be sufficient to say, that during the whole of the time we were at work, the ships were so entirely hidden from each other by a dense fog, that the boats were directed backwards and forwards, amongst loose ice, by the sound of bells, which we continued ringing.

When our stores were all on board, we found our narrow decks completely crowded by them. The gangways, forecastle, and abaft the mizen-

mast, were filled with casks, hawsers, whale- 1824.
lines, and stream-cables, while on our straight- August.
ened lower deck we were obliged to place casks and other stores, in every part but that allotted to the ship's company's mess tables; and even my cabin had a quantity of things stowed away in it. The launch was filled high above her gunwales with various articles, and our chains and waist were lumbered with spars, spare plank, sledges, wheels, *&c.* Our draught of water aft was now sixteen feet one inch, and forward fifteen feet ten inches.

This account of our crowded state may lead to a supposition that I carried out a larger portion of stores than was absolutely requisite; but I may in a few words explain my reasons for having endeavoured to carry all the supplies which the Snap brought across the Atlantic for us.

Our stay in the Polar regions must of necessity have been above one year and a half, even supposing that my journey to Point Turnagain had been performed with the greatest expedition; but had I encountered difficulties, and experienced those delays on my return to the Griper, which are unavoidable

1824. August. in this desolate country, I might not have reached her until she was again frozen in, and two years and a half would then have been her shortest stay; in which case it was indispensably requisite that provisions for that time should be carried out, and these it was that now so much incommoded us. On the Griper's former expedition with Captain Parry, she was only able to carry one year's provisions, and was supplied from the Hecla at the expiration of that time; and on her recent voyage with Captain Clavering, up a wide and open sea, she only carried an eighteen months' supply, as it was not intended she should winter in the country.

The difference in the quantity of stores may therefore account, in some degree, for the ship's being so hampered; and I have trespassed thus far on the patience of my readers in consequence of an idea which has been adopted by some persons, unacquainted with naval affairs, that I had uselessly lumbered my ship; when, in fact, had I succeeded in reaching Repulse Bay with less stores than I now carried, certain starvation would have attended us all, if we were detained, as might have happened, a second winter. It may also

be proper to mention, that the Fury and Hecla, which were enabled to stow *three* years' provisions, were each exactly *double* the size of the Griper. 1824. August.

The night was very dark, and we stood north-west, amongst heavy ice, but in smooth water; rain fell constantly, and, the temperature being 31°, froze as it fell.

On the morning of the 4th Lieutenant Bullock came on board, and I received a seaman, (John Howard) from the Snap, in place of William Chamberlain, who having been for some time afflicted with *hernia humoralis*, and being otherwise in delicate health, it was judged prudent to discharge for a passage to England. I also received a light gig, which I was now enabled, by being in comparatively smooth water, to hang to the waist davits.

Having closed my despatches to the Admiralty and Earl Bathurst, and given Lieutenant Bullock instructions to proceed to his station, the two ships hoisted their colours, and parted with three times three.

I have much pleasure in here acknowledging my obligations to Lieutenant Bullock, whose attention and activity had been so frequently of great assistance to us. I had the satisfaction of seeing the Snap take a "lead"

1824. August. in the direction of a dark water sky; and, with a fresh breeze from the south-west, and small drift snow, we ran the Griper into the "pack."

AFTER PARTING FROM THE SNAP.

ALTHOUGH the weather continued thick, we obtained a short glimpse of the sun soon after noon, which gave our lat. 61° 13′ 0″, and long. by dead reckoning, 63° 53′ 50″.

The extreme of land bore due west about ten miles, and as I conceived this to have been Cape Chidley, its latitude by the charts must be about twenty-seven miles too much to the northward. The weather, however, was at this time so thick that the base of the land was alone seen, yet its termination in three distinct bluffs and a rocky point was undoubtedly ascertained. At one P.M. we again saw the extreme bluff bearing w.b.s.½s., at about fifteen miles distance.

As the ice, which lay in loose packs, was rather light than otherwise, I kept the ship N.W.B.N., in hopes of passing close to the eastward of Button's Islands. The wind continued strong all night from the south-west, with a short heavy sea, in which the ship

being so much top-hampered by the stores received from the Snap, could carry but little sail, and made much lee way. 1824. August.

On the forenoon of the 5th, the weather broke, although the wind continued strong from the same quarter. We obtained sights, and before noon made the land indistinctly, which we soon knew to be Cape Resolution, of which Mr. Bushnan has given so accurate a drawing in Captain Parry's book. It would therefore appear, that although our reckoning gave us N.W.b.N., we had only made a north course, and had driven under the influence of a strong lee current, quite out of the strait. As the flood was making, we stood on for Cape Resolution until four P.M., when the tide having turned, we stood with it for the centre of the strait. Several bergs were in sight to the northward, but no other ice of any consequence. The air had now become very cold, and the thermometer seldom rose above the freezing point; up to this period we had, in fact, experienced more severe and unpleasant weather, than during our passage out on the last voyage. The wind came round from the westward, and with thick rain had freshened considerably by sunset; but we sailed so very badly that there were little hopes of our

1824. August. making any progress against it. At dusk we suddenly came on a narrow "pack" of very heavy blue ice, amongst which an uneasy cross sea was running. We passed through a slack part of this with considerable danger to the boats, and a high "wash piece" very nearly carried away our bowsprit. From being so unhandy, it was midnight before we could get to windward of this very dangerous pack.

Early on the morning of the 6th, the sky broke, and we again saw the land. By attending to the tides, standing off on the ebb, and in at the flood, we arrived by evening off the opening between Resolution and the Lower Savage Islands, which latter, with the East Bluff were distinctly seen and set, and so great was the refraction, that the land about Cape Chidley, with the Button Islands, were also clearly observable.

The sea was crowded with loose heavy ice all this day, which was decidedly the first fine one we had enjoyed since leaving England. I never remember to have seen the sky so beautifully and brilliantly reflected in the water, as on this evening; and lovely as the surrounding dazzling view may have been, I could not but yield to a sensation of loneliness

which I had never experienced on the last voyage; and I felt most forcibly the want of an accompanying ship, if not to help us, at least to break the deathlike stillness of the scene. The agreeable visits from ship to ship, which so pleasingly break in on the monotony of a Polar voyage, were now denied us, but I was amply compensated for the want of a more extensive society, by having the happiness of knowing that I had officers and men with whom I was confident of continuing on the most friendly terms. We had already in our passage across the Atlantic arranged our little plans of improvement and amusement, and I looked forward with pleasure to the approach of winter. 1824. August.

The night was mild, clear, and calm, yet although the ship had scarcely any way through the water, we found on the morning of the 7th that she had not drawn to the eastward; a proof that the impetuosity of the tides ceases, or is considerably diminished, thus far up the strait. The whole of the 7th was equally delightful, but the sea was still covered with heavy sailing ice. A quantity of sea weed was seen on the water, and during the last two days we had also observed many pieces of drift wood, and small distorted pines

1824. August. from six to twelve feet in length, having the roots still attached to them, and but little injured by the water. A great quantity of looms, dovekies, rotges, mallemuks, and kittiwakes were seen, as was also one Peregrine Falcon.

The ship having but little way, our boats made several trips to the floe ice for water, and we were enabled, for the first time since leaving Orkney, to allow the people sufficient to wash their clothes, as we were unable to stow more than six tons of water for our passage across the Atlantic. In the afternoon, the flood tide having made in our favour, we passed the East Bluff with a fresh north-east wind, and found the ice heavier and closer as we advanced. At seven we came to a pack of the largest ice we had yet seen, having a number of bergs in it. Passing through the narrowest part, about three miles, we came to open water. I was led to imagine from the way in which this ice trended, that it must have entered the strait through the passage between Resolution and the East Bluff, and I am the more inclined to this opinion, from remembering that while we lay for several days beset off this place, in the Fury and Hecla, the tide changed irregularly, and appeared to have an independent set, as if running from

VIEW OF TERRA NIVEA.

in Hudson's Strait

Published Dec.r 1824 by John Murray London.

some other channel than the mere entrance of the strait. 1824. August.

Late in the evening we had arrived abreast of that remarkable ridge of land, distinguished by our earliest northern voyagers by the name of Terra Nivea, from its being constantly covered with snow. Although the mountains in its vicinity are many of them of an equal height with it, not one has a morsel of snow on its highest pinnacle, while this unbroken ridge does not shew the smallest speck of rock. At four different periods, July, September, August, and October, in which I have passed this land, its appearance has always been the same.

We had an excellent run all night, although the weather was rainy and very thick, and by four A.M., on the 8th, were abreast of Saddle Back and the Middle Savage Islands; which are numerous, and several have long shoals running from them.

The fall of tide must here be very great, as some pieces of ice, drawing at least twenty feet, lay high and dry a considerable distance up the rocky beaches.

I had set the islands and gone to bed at day-light, leaving the ship five miles from the land, and running about as many

1824. August. knots through the water; but was suddenly aroused by her receiving a slight blow, immediately followed by another heavy and continued shock, which heeled her so much that I imagined she was turning over. Running on deck, I found she must have struck on a rock, or piece of ice attached to the bottom, but she had forced her way over it; and on immediately sounding, had no bottom with twenty-five fathoms. We were fortunately enabled to set the known land, and lay down the position of the danger with accuracy. Running amongst loose ice all the morning, we ultimately came to very heavy floe pieces, amongst which were numerous bergs. The thickness of the weather prevented our seeing a "lead," but in the afternoon we hauled into clear water, which from our reckoning, was in the North Bay, and a glimpse of the land in the evening confirmed this.

The deviation of our compasses was here very great and irregular, although less so with our head to the northward than otherwise. Even Gilbert's excellent azimuth compass required constant tapping, although under the influence of Professor Barlow's plate, which had hitherto corrected it with the greatest accuracy.

Heavy rain fell all night, and we tacked be- 1824.
tween the pack and the shore, in from eighty- August
three to forty-three fathoms, keeping in sight of two small grounded bergs, which acted as beacons, past which the tide in the ebb and flood was setting at the rate of a mile and a half.

At four A.M., on the 9th, we obtained a momentary sight of the North Bluff, and set it N.W.b.W. The pack was close up to it, and appeared to be driving rapidly into the open water where we lay, and which was the only clear space in sight. I therefore determined on taking the ice with a light south-east wind, and we made a few miles westing by the evening, when the weather calming we hung on to a floe. As rain had fallen incessantly during the two last days, and the people had been constantly wet, advantage was taken of this period of quiet to dry their clothes on the lower deck.

On the ice by which we hung, were found several pieces of gneiss and granite, some sea weed, and bivalve shells. But we were surprised to find in addition to these, a number of oak-leaves, and one leaf of the wortle-berry. This latter discovery would lead me to imagine that the ice had driven from the lower part of

1824. August. Hudson's Bay; for it is well known that neither oaks nor other trees grow in Hudson's Strait, or come as high as Chesterfield Inlet*. In the afternoon we had soundings in one hundred fathoms. Rain and fog continued until the forenoon of the 10th, when a breeze which sprung up from the north-west, directly against us, cleared the sky sufficiently to shew the Upper Savage Island, on which we had landed last voyage, bearing N.b.W., with the North Bluff N.W.b.N., distant ten and fifteen miles. Having found a heavier piece of ice than that to which we were fast, we warped to it, and our people were enabled to wash their clothes in its numerous pools, and amuse themselves on it for the day. In driving with the north-west wind we experienced considerable anxiety by being repeatedly swept past bergs, and frequently almost upon them. These dangerous bodies were extremely nu-

* Subsequent to writing this part of my journal, I have searched in the accounts of various voyages to Hudson's Bay, and have reason to believe that the only ice which escapes from it, is that lying in its northern or broadest part; and that the winter's formation in the bottom of the bay is thawed where it lies. This would lead me to suppose that the floe in question must have come from some other situation, and affords a subject of interesting inquiry as to its original site.

merous here, and indeed with the exception of the entrance of the strait, we had seen more ice than during our outward passage on the last voyage. No water was observed in any direction, and I remarked that the ice by which we were surrounded was of two kinds; either blue and transparent, from being washed clear of snow, or brown, and covered with sand and dirt to a considerable depth. The dirty ice, however, was far the most abundant, and in the proportion of two to one of the clean. Whence the great quantity of ice we had seen could have driven, I cannot imagine, as the Hudson's Bay ships never meet with any impediments in August, or at all events find nothing but "sailing ice," while we had found the sea absolutely crowded, and in many places closely packed as far as the eye could reach*. 1824. August.

*The having met with such an unusual quantity of ice, at this late season of the year, was afterwards most satisfactorily accounted for, by my learning from the master of a whale ship, with whom I spoke on my homeward voyage, that strong north-easterly gales had been prevalent all July and August, and had very materially altered the usual trending of the ice in Davis' Strait, so that the tunnel-shaped entrance to Hudson's Strait must have afforded it an easy reception.

1824. August. We hung on until after noon on the 11th, being unwilling to quit our floe, which was the largest yet seen, and on which as the weather was tolerably fine, we were enabled to stretch lines for the purpose of drying clothes, *&c.*, which was now very requisite, as from the continual wet weather we had experienced, the ship and every thing within her had become very damp. We also sent our ponies, ducks, geese, and fowls on the ice, which in the forenoon presented a most novel appearance; the officers shooting looms as they flew past, and the men amusing themselves with leap frog and other games, while the ship lay moored with her sails loose in readiness to quit our floating farm-yard by the earliest opportunity. A slack in the ice, and a fresh north-west wind, enabled us, at thirty minutes after two, to make sail and work along shore. I observed that the larger bergs were here but little affected by the tide, which, from its merely operating on the floe-ice, must be more superficial than at the entrance of the strait. In the evening the wind fell light, and the refraction became greater than I ever remember to have seen it before, for it was not confined to a particular portion of the horizon,

but its influence was every where the same, and the distant ice appeared to form one continued high wall, which entirely encircled us. 1824 August

A fresh north-west wind set in at night-fall, and we hung to the largest piece of floe-ice we could find. The Aurora was visible for several hours, chiefly in the zenith, where the figure it most delighted to assume, was that of a long waving serpent of the most dazzling brilliancy; and I was now fully convinced of my error in having formerly asserted, 'that the prismatic colours are not visible in this phenomenon,' for the most vivid purple, light blue, pink, yellow, and green, alternately bordered and mingled with the wild fire above us.

At daylight on the 12th we had driven considerably, owing to the smallness of our floe, but no other was found of a greater size. Standing alongside in the forenoon and lamenting to one of the officers the want of amusing incident so much required while lying helpless in the ice, we suddenly saw an Esquimaux close at hand, and paddling very quietly towards us. He required but little encouragement to land, and having hauled his boat up on the ice, immediately began to barter the little fortune he carried in his kayak. I was happy to find that he understood me perfectly,

1824. August. and that he spoke in a great measure the same dialect as our friends at Igloolik; a fact we were before unable to ascertain from our total ignorance of the Esquimaux language when we first saw the natives of the Savage Islands. My new acquaintance was called Kēe-poong-āi-li, and he anxiously asked my name, a custom never omitted by Esquimaux on meeting a stranger; until he remembered it perfectly. He was extremely urgent that we should carry the ship to the shore, and with very excusable anxiety at finding himself alone, expressed impatience for the arrival of others of his tribe, many of whom, he said, were coming off.

In half an hour our visiters amounted to about sixty persons, in eight Kayaks, or men's, and three Oomiaks, or women's, boats, which latter had stood out to us under one lug-sail composed of the transparent intestines of the walrus. As the females approached they shouted with all their might, and we were not so deficient in gallantry as to be silent on such an occasion, for the specimen collectors were happy to observe that our fair visitors wore immense mittens of delicate white hare-skin, trimmed in the palms with the jetty feathers of the breast of the dovekie. The boats being all hauled on the ice—Babel was let loose. On

our former voyage being myself a novice in the country, I was not aware, in the excitation of the moment, of the noise we all made, but being now well acquainted with the vociferous people who were visiting us, I quietly witnessed the present interview, and am convinced that it is not possible to give any idea of the raving and screaming which prevailed for a couple of hours. Some of the natives, however, were not so violently overpowered by their joyous sensations, as to forget that they came to improve their fortunes; and one most expert fellow succeeded pretty well in picking pockets, an occupation from which frequent detection did not discourage him. Amongst other things he robbed me of my handkerchief, and was particularly amused when I discovered his roguery, for which I thought a box on the ear would have acted as a warning, but I afterwards found that he had crept on board, and was carrying off a bag of seaman's clothes; a grand prize, for the retention of which he made a most violent stand, until I succeeded in tumbling him over the side. The generality of the others behaved pretty well, and traded fairly, each woman producing her stores from a neat little skin bag, which was distinguished by our men by the name of a "ridicule," than which I con-

1824. August.

1824. August. ceive it to be a far more respectable appendage. Our visiters did not possess many curiosities, and were certainly not so rich as we had found them on our former voyage, the chief articles in which they bartered being their weapons and clothes; and, I blush while I relate it, two of the fair sex actually disposed of their nether garments, a piece of indecorum I had never before witnessed. A few seal, deer, and hare skins, with those also of young dogs, mice, and birds, were the other articles of commerce; and a very few ivory toys, with sea-horse teeth of a small size, completed the assortment. In a "ridicule," with some of these articles, we found a piece of very pure plumbago, of the size of a walnut; and with the toys was one of a description I had not before seen. It was a large heavy piece of ivory, in which many holes were drilled at regular intervals, but leading in different directions. A small peg is attached to this by a string, and the game consists in throwing up the ivory block, and receiving it on the pin, in much the same manner as our game of cup and ball. A new variety of comb was also purchased, and I procured a mirror, composed of a broad plate of black mica, so fitted into a leathern case, as to be seen on either side. Our trading had continued some time before

we discovered four small puppies in the women's boats, and they were, of course, immediately purchased, as an incipient team for future operations. 1824. August.

The acquisition of these little animals reminded us of our own live stock on board, and the pigs and ponies were accordingly exhibited to a few natives, who were called on deck for the occasion; but they drew back from the little horses with evident signs of fear, while the squeaking of the pigs, in their struggles to escape from those who held them, added not a little to the surprise of the moment. A safe retreat for a few yards, however, re-assured our visiters, when a loud laugh and shout announced their satisfaction at having seen two new species of Tooktoo, (rein deer.)

As a lane of water was seen in shore at noon, we were under the necessity of bidding our visiters adieu; yet such was their desire to remain with us, that when we left the floe, our people who attended the hawsers, escaped with difficulty into the boat, from the friendly, and not very ceremonious, struggle which was made to detain them.

My last purchase at parting was the ingeniously-constructed sail of a woman's boat, which was gladly bartered for a knife. This was nine feet five inches at the head, by only

1824. August. six feet at the foot, and having a dip of thirteen feet. The gut of which it was composed was in four-inch breadths, neatly sewed with thread of the same material, and the whole sail only weighed three pounds three-quarters. As we stood in for the land the kayaks accompanied us for some time; and when every thing had been sold, a couple of them lay quietly towing along-side. One of the men was Kēe-poŏng-āi-li, and he informed me that the whole of his tribe, with the exception of the old and sick, who were not numerous, had been off with every boat in their possession. Their settlement was in the bay immediately behind the North Bluff, but I could not obtain the name of the place, owing to the wittiness of my friend, who, observing that its length made it difficult of pronunciation, amused himself by repeating it quicker each time that I asked to hear it again. He informed me that musk oxen, deer, and the usual sea-animals abounded there, as well as fish, which, from the description, I should suppose to be salmon. Kēe-poŏng-āi-li appeared much amused when I informed him that I had seen "Īn-nŭ*" last year, and that their country was very far off; but

* A name by which the Esquimaux distinguish themselves, signifying, "The man," par excellence.

when I mentioned "Shadlermioo*," he seemed perfectly acquainted with the name, and, pointing to the north-west, said, "they live there." Before my informant left me, I exchanged an ash paddle and some other useful articles for his own oar, which was neatly constructed of several pieces of wood, and edged with ivory. 1824. August.

During the rest of the day we worked up along the coast, which is of bold granite rock, and near it several large bergs were lying aground. Having reached to about eight miles from the North Bluff, we saw other Esquimaux coming down to us from the north-west; and six kayaks, with an oomiak containing eighteen grown persons and many children, came along-side, and were taken in tow.

In the tumult of our trading, I observed that the natives took no heed as to whether the ice struck their boats or not, and I accordingly held one of ours in readinesss to be lowered in case of accidents. This was scarcely done when all the native boats were actually towed over one poor fellow in consequence of his obstinacy in holding on, although he saw, and had been warned of, his danger. I instantly went after him, and all his country-

* A contemptuous term applied by Esquimaux to any others who are not of their own tribe.

1824. August. men, with more humanity than I had seen displayed on a similar occasion, shoved off also to his assistance, one picking up his spears, another his paddle, *&c.*, while he, without appearing at all flurried, liberated himself very ingeniously from his boat, by turning on his back, and stretching his arms round her bottom. We towed him to the woman's boat, and there left him, in no very good humour, and shivering with cold, to bale out his kayak. This second division of visiters did not belong to the same party as those who first came off, but were established about fifteen miles from them, in a deep bight to which they pointed. We procured from them nearly the same articles as were brought by the others, and I purchased a little parcel of the skins of red foxes' legs, which animals are not perhaps known to frequent the shores of Hudson's Strait. The night was very foggy, and we stood off and on between the pack and the land.

It was evident, from a momentary sight of the land at daylight of the 13th, that we had made some westing, but our progress was painfully slow. In working during the day we passed to windward of many closely-packed streams of ice, generally composed of very heavy masses; but as the water lay in lanes, were not without hopes of soon arriving in a

clear sea. A thick fog distressed us all day, but in the evening the sky broke, and the weather calmed. The temperature since morning had been as low as 30° in the shade, the sea being 32°, and the fog froze thickly in the rigging. Although the fogs in the Polar regions are so frequently mentioned in the course of the recent narratives which have been published, I believe they are generally understood as resembling our English fogs, which is not, in fact, the case. In the northern seas these vapours rarely rise to above a hundred feet from the sea, and a sky of most provoking brilliancy is frequently seen over head. The view from the deck is bounded to about a hundred yards, and such is the rapid formation of the icicles on the rigging, that it is actually possible, when the temperature is low, to see them grow beneath the eye. Yet chilling as this may appear, the sudden clearing of the fog no sooner permits the sun to break forth in its full vigour, than the ship and rigging glisten in the most brilliant manner, as if they were of glass, and a rapid thaw quickly restores every thing to its original colour. 1824. August.

At night-fall a light breeze sprung up from the southward, and for the first time in many days the ship lay her course unimpeded by ice. By ten, however, we again came to a close

1824. August. pack, and the wind veered to north-west, fresh, with heavy rain and a dense fog. We worked in a hole of water for the remainder of the night. The wind continued steady all the 14th, and the land was again seen. Hanging at night by a thin floe, we continued at it all the 15th, which was a calm, clear day, and young ice formed in the holes of water, under the broad glare of the sun. The stillness of this day was highly favourable for obtaining observations for the dip of the needle, but the floe to which we were fast was not of sufficient extent to admit of our getting so far from the ship as to be free from her attraction. I was now the more desirous of obtaining these observations, on account of the fast increasing sluggishness of the compasses; for that of Gilbert's, which had hitherto been fully corrected for the local attraction of the ship by Professor Barlow's plate, now began to shew nearly as much deviation, when our head was to the eastward, as any of the other compasses. On this day, by a bearing of the meridian sun, it amounted to 28° w.

The night was fine, and a light north-east breeze enabled us to cast off on the morning of the 16th, and "bore" a few miles to the westward through ice which was lying in long narrow streams. The morning of the 17th

being fine, Charles' Island was seen to the westward, so that, although we had steered by compass for its northern extreme, an increase in the deviation had led us to the south-east of it. Standing in for the land until afternoon, the wind fell, and the weather thickened—we then tacked off again. On the sky clearing at thirty minutes past four, we saw several walrusses lying on a narrow stream of ice, and I allowed the officers to take two boats and attack them. They soon killed two females, which we hoisted in, for they were considered as equal to a supply of fresh beef by the old hands. In consequence of meeting with these animals, I was led to imagine that the water would be shoal, although we were so far distant from the land, and the first cast of the lead gave forty-five fathoms. A slight rippling about a mile north of this gave indication of still shoaler water, and our casts in standing to it were forty-five, forty-one, thirty-five, and thirty-three, when it again deepened in exactly the same proportion; and standing s.b.w., we came gradually into seventy fathoms, after which we had no bottom with one hundred and twenty. Making the land indistinctly at sunset, we stood off and on all night, and passed a few narrow streams of ice.

1824. August

1824. August. The wind was W.N.W. all the 18th, and having passed two heavy streams of ice, the day was occupied in working to windward. It had been evident for two days past, that every stream of ice we had seen, whatever its magnitude or extent, trended due north-west and south-east; a strong indication of a perpetual current in that direction; and, as a farther confirmation of this remark, the shoal of yesterday, as well as the ice which floated above it, lay in precisely the same bearing; and, as the bank was of soft sand, it may be inferred that it had been deposited by the tides. The fact of our not having again seen any walrusses, and entered into the usual deep soundings, shews that the shoal cannot be extensive; and it is to be regretted, that the Griper's very dull sailing did not admit of my devoting a few hours to its full examination; but having obtained satisfactory sights, we were enabled to lay down its position very accurately. At thirty minutes after nine P.M., we stood off the land, to which we had approached within two miles, and while in stays had no bottom with one hundred and thirty fathoms. Although the wind continued foul all this night and throughout the 19th, the smooth water enabled us to work slowly along

shore. We approached to within about ten miles of Cape Wolstenholm before evening, the bearing of which, with that of Diggs's Islands, was taken. 1824. August.

The land hereabouts has a very remarkable appearance, being broken into high perpendicular bluffs, of from six to eight hundred feet, between which the rocks were split into deep ravines, descending abruptly to the water's edge; and, at a few miles distance, giving the idea of their being the entrances to narrow fiords. The rocks are apparently of gneiss, the strata of which dips, with a considerable curve, to the northward. In the course of the day we passed many streams of ice, all trending north-west and south-east, and large flocks of looms, with a few eider ducks, were seen.

We were off Cape Wolstenholm by the morning of the 20th, and in the afternoon abreast of Diggs's Islands, where we found the sea very full of ice. It now fell calm, and continued so with rain and fog all night.

The morning of the 21st was fine, with sufficient of a variable wind to carry us through a quantity of ice, lying in a close stream of three miles width. Salisbury and Nottingham Islands, with some apparently detached

1824. August. pieces of land off them, were seen indistinctly. In the evening a singular species of fog passed over us from the westward, its height not exceeding thirty feet; above which was the clear blue sky. From the main-top the vapour appeared like a dull soft wave rolling past us, while from the deck, when clear of the ship, it resembled a high dusky wall. During the time it surrounded us the sun was very strongly reflected on the part opposite to it, and the appearance was as if a second sun was glimmering through the haze. The night was calm and cloudy, and the sea full of loose hummocky ice, but we no longer saw any bergs, which seemed not to have arrived higher than Charles' Island; yet even this was very much farther up the strait than we had found them on the last voyage, even at an earlier season of the year.

We made but small progress to the north-west during the 22d, yet lost sight of Diggs's Islands, and on the morning saw a part of the mountains of Southampton Island, very distant in the west.

In the first watch some interesting observations were obtained, to ascertain the amount of the deviation of our compasses; but as I con-

ceive that these observations, with many others equally interesting, will be better seen by being arranged in a separate table, I have placed them in the Appendix. 1824. August

A thick fog with a high wind continued all the night, which was very dark, and although the wind remained unchanged, it was not until noon of the 23d that the weather cleared.

During this time we had made a few miles south-westing, and passed some heavier ice than we had yet seen, many of the floes being two or three miles in circumference. We had soundings in the night in fifty fathoms, and at daylight of the 24th, thirty fathoms, at which time we found ourselves off a heavy pack of ice, which lay against a yellow shoal beach at about four miles distant. Some sea-horses being on the ice our boats killed a couple of them, and having stood along the coast with a light air, I landed at ten A.M., with Mr. Kendall, for the purpose of obtaining observations. As we approached the shore we had ten fathoms at one mile and a-half, at half a mile four fathoms, and at a quarter of a mile two fathoms, rocky bottom, on which heavy masses of ice lay grounded. We observed on landing that the tide had fallen about four inches, and that the ice with the *ebb*, was coming from the north-

1824. August. ward. The beach was of shingle lime-stone, of which indeed a low line of coast, extending for about twenty miles to the northward, appeared to be composed. At about that distance north-east, the mountains rose high and bold, and were doubtless the end of the range on which "Cape Comfort" of Baffin is placed. The beach on which we stood, trended abruptly round to the west as far as we could see *.

Between the intervals of obtaining our sights, we walked inland, and saw five deer, although from the scarcity of vegetation, I could not have supposed there was sufficient for their subsistence. Near the numerous

* Latitude by two merid. altitudes,	63°	26′	51″	N.
Longitude by two sets of sights and the mean of six chronometers .	80	51.	25	W.
Dip of the magnetic needle . .	86	32	00	
Variation by Gilbert's azimuth compass	37	30	00	W.
Time of high water at full and change	10h. 15m.			
Rise at spring tides, about . .	20 ft.			
Rise at ordinary tides . .	12 ft.			

I was surprised at finding the variation to be so small, as our last observation at the ship had given 52°; but on looking over Captain Franklin's appendix, I find he remarks that the variation decreased very rapidly as he crossed Hudson's Bay, and at York Fort, in long. 92°, it became easterly.

shallow lakes, were a variety of the usual beach birds, and a few pin-tailed ducks; and on the banks of a large piece of water were the remains of three Esquimaux summer circles, moss-grown, and apparently long forsaken. There were no other traces of natives having been recently near the spot until we came to the beach, where we unexpectedly saw the footing of a man and dog, which we traced as having followed the track of the ship as she sailed past the beach. The marks were quite fresh, and near them was the recent path of a large bear. In the few plants we procured, the flowers had given place to the seed, which in some specimens was already quite matured. We also picked up two small splinters of drift wood, but so much decayed that they were at first supposed to be asbestos. At twenty minutes past two P.M. the ice in the offing began to set at the rate of a knot from the southward, but the tide, which had already fallen ten feet, was still ebbing. That portion of the shore which was now uncovered, was of lime-stone rock, running out to seaward in flat steps or ledges, and amongst the stones the boat's crew caught two small species of rock fish. 1824. August.

At three we left the beach, and passing

1824. August. amongst the ice, on which many walruses were lying, arrived on board at thirty minutes past four, when I learnt that two others of these animals had been killed. We now stood away south-west for a distant point of high land, which I imagined to be the Cape Pembroke of Sir Thomas Button. The situation of the point on which we landed, differs so much from the position assigned by Baffin to Sea-Horse Point, that I imagine he did not see this low part of the coast, but the mountainous land to the north-east, which answers more nearly to his latitude. The point on which we had landed was called after Mr. Leyson (assistant surgeon); and a broad strait of about thirty miles, which runs between this and Cape Pembroke, received the name of Evans' Inlet,—after Mr. Evans, purser of the Griper.

The soundings in which the ship had worked at five miles from the shore, varied from fifty to thirty-five fathoms, muddy bottom. I am thus particular in stating our soundings on this day, as they are the commencement of constant labour at the leads, and also as a proof of the careless manner in which the old charts of the coast of Southampton Island have hitherto been marked; for it is in them laid down as a bold precipitous shore, having from

ninety to a hundred and thirty fathoms off it, 1824.
while on almost every part which we coasted, August.
our hand-leads were going at from four to ten miles from the beach, which in no one place could be approached within a mile by a ship. At daylight of the 25th we made out tolerably high land at Cape Pembroke, with a long low point running off it south-west. Working in that direction all the day and night, at dawn of the 26th we passed abreast of the high land, and saw the beach trending south-west, until lost in the distance. Here, it may be proper to observe, the high land entirely ceased, and we entered on a very flat beach of so uniform an appearance, that we were frequently at a loss for a large stone, or some break in the coast-line, for the connexion of our angles as we surveyed it. Our compasses had now become quite useless with our head southerly, and that in particular to which the plate was fitted, so powerless, that its north point stood wherever it was placed by the finger; but with our head northerly they all traversed again. This, however, benefitted us but little, for, as our route lay to the south-west, we were without other guidance than celestial bearings, which could not always be obtained. We continued to near the Cape Pembroke shore until one P.M.,

1824. August. when, favoured by a strong northerly wind and the tide, we ran south-west by west by the sun, along the low land, in from thirty-seven to twenty-five fathoms, when at dark I hauled into fifteen fathoms at four miles from the shore, and anchored for the night. To the south-west of us, the land terminated in a low beach awash with the water, and I did not think it prudent to attempt passing it in the dark, as I must have continued under sail without any object by which I could steer. Several white whales were seen in the course of this day.

Weighing at four A.M. on the 27th, with a very light breeze from the northward, we ran about four miles south-west by south in low but regular soundings; when, the wind failing, we anchored with the stream in twenty fathoms, at four miles from the beach. Sailing along the shore, we had heard loud shouting, and when the day broke, saw seven natives following us by the water's edge. They were now abreast the ship, and as it was desirable to obtain observations, I landed with some of the officers and two boats, but the sky was too cloudy to favour our getting sights for the chronometers.

While yet a mile from the beach, a native

Drawn by Capt.n Lyon, R.N.

NEE-A-KOOD-LOO.

Engraved by Edw.d Finden.

was seen coming off to us, and as he approached, we observed, that instead of a canoe he was seated on three inflated seal-skins, connected most ingeniously by blown intestines, so that his vessel was extremely buoyant. He was astride upon one skin, while another of a larger size was secured on either side of it, so that he was placed in a kind of hollow. His legs, well furnished with seal-skin boots, were immersed nearly to the knee in water, and he rowed with a very slender soot-stained paddle of whale's bone, which was secured to his float by a thong. 1824. August.

On approaching, he exhibited some little signs of fear; his teeth chattered, and himself and seal-skins trembled in unison. It was evident from the manner of this poor fellow, that he had come off as a kind of herald from his tribe, and as I felt for his alarm, I threw him a string of beads, which he received in great trepidation, and placed, with trembling fingers, across a large bunch of hair which protruded from his forehead. A few friendly signs which accompanied my gift, gave him a little more confidence, and he soon came alongside, after having, as a peace-offering, thrown me a couple of dried salmon and a very rude arrow headed with a roughly-chipped flint: at my

1824. August. request he jumped into our boat, and taking his skins in tow, we rowed for the beach; but our new acquaintance was not a very quiet passenger, for he stood up repeatedly to wave and shout to those on shore, assuring them of his safety, and that I had given him three needles. He was about twenty years of age, very small and brown, with a most agreeable cast of countenance. He called himself Nēe-ă-kood-loo, and as we made for the beach I found, that although he understood me a little, and used a few words with which I was acquainted, yet he spoke a language differing very materially from that of any other Esquimaux whom we had seen. He chattered and chuckled rapidly and delightedly to himself, and always with downcast eyes. At a long shoal point we jumped on shore to his six countrymen, who appeared to have neither word nor gesture of salutation, and each, as I approached him, presented me with two half-dried salmon, evidently intended as a peace-offering; for the donors drew back on my accepting the fish, as if they expected no equivalent. Observing a dirty-looking bone in each man's hand, I asked what they were, and the poor creatures told me they were their "Pān-nas" or knives; which on examination I found

to be formed of a rough piece of chipped flint, somewhat like a poplar leaf in form, and clumsily lashed to small bone handles of about six inches in length. Such were the only cutting instruments of these wretched people. I purchased each man's panna for either the officers or myself, giving a strong butcher's knife in exchange, which the poor fellows received with silent and trembling delight, first eyeing me, then the knife, and at last uttering a long sighing "kooyenna" (thank you) in a tone expressive of the deepest gratitude; and this display of their feelings was not confined to the impulse of the moment, for it was constantly repeated, with every appearance of sincerity, during the whole of our stay on shore. No one licked, as is the general Esquimaux custom, any of the articles we gave them. 1824. August.

While landing our instruments, and waiting in hopes of obtaining sights, the natives stood quietly gazing on us as if quite overpowered by their surprise, and there was not a word uttered, unless to invite us to their tents, which I afterwards found were about two miles distant. As we walked to them along high shingly beaches intersecting small swampy lakes, several birds were shot by the officers; but although the natives saw them fall, they

1824. August. expressed neither surprise, fear, nor curiosity about the guns! We passed several small store-houses, of about six feet in height by ten in diameter, built of rough slabs of lime-stone, rudely but regularly piled up, and Neeakoodloo opened one to shew me that it contained a quantity of split salmon, suspended by the tails in such a manner that no small animals could reach them. As we walked forward, my companion who went at a rapid impatient pace, talked incessantly to himself with his eyes fixed on the ground, occasionally elevating his voice, which had a very agreeable tone, to a most merry chant, having a jerk not unlike a hiccup at the end of each sentence. He would then for a moment appear to recover from his fit of musing, and turn to urge me forward, but soon relapsed again into his merry soliloquy. If I spoke, he answered with a lively "Hai!" but never waited or endeavoured to comprehend me, and again began chuckling to himself. He seemed quite ignorant of the word Kayak, although he knew what an Oomiak was, and pointed to the ship; and I observed that he called dogs "Tchĭen-miŭk," which differs very much from the Igloolik name "Kāin-meg." Several other words were equally different, and his language, which

was pronounced shortly, appeared in consequence to abound in monosyllables. 1824. August.

We found two tents, very small, and full of holes, by which both wind and rain might enter in all directions. They were of badly dressed seal-skins. Five women and their six children were the inmates, and when we entered, the former shewed no signs either of fear or surprise, but received us as if they had been accustomed to the sight of Europeans all their lives. The children, on the contrary, all hid their heads, and neither spoke to, nor even looked at us during the whole visit. One of the women, by her appearance, could have been scarcely fifteen years of age, yet carried her own child, a stout boy of at least a twelvemonth old, at her back. Her face was as perfect an oval as that of an European girl, with regular and even pretty features. Her mother was with her, and had the same cast of countenance, save that she squinted abominably—a defect I have witnessed but in one other instance amongst these people. The other women had the broad flat faces and high cheek bones usually met with. I had no sooner entered Neeakoodloo's tent, than remembering, I suppose, my present to him, he took up a large new deer-skin, rolled it neatly up, and threw

1824. August. it towards me, repeating at the same moment "Kooyenna." The tent floors, with the exception of the small space allotted for sleeping on, were entirely strewed with salmon and their offal; and, as I saw no lamp; and but one miserably constructed cooking-pot, I suspect that the fish are generally eaten raw. About two dozen dogs were lying near the tents, but, with their usual fear of strangers, all ran off on our approach. I saw no sledges.

There were none of those little domestic toys in these tents which we had always found with our Winter friends, and it was not until our visit was nearly over that I discovered the women used very ingeniously-formed bone needles, which of course were purchased by an abundant supply of steel ones. They had also a couple of little iron needles of their own manufacture; these were apparently made from two small nails, not much reduced in thickness, and having such diminutive eyes that they could never have been of any service. The bone needles were formed from the pinions of birds, which are far harder, and at the same time more plastic, than any other bones.

On the ground in one of the tents, I saw a little bit of deal, about three inches in length,

planed and painted black on one side. This was amongst the valuables of the family, although from its size it could not have been made useful, but was probably treasured in consequence of its having drifted to their shore from one of the Hudson's Bay ships. This, with three bows, each consisting of many pieces, was all the wood in their possession, for their spears were made of the whale's rib bone, and in a rougher style than any we had hitherto seen. Yet this scarcity of wood did not prevent their gladly selling the bows; and I afterwards learnt that one with five arrows was purchased for a livery button. I distributed knives, boarding-pikes, and beads to the whole of this little tribe, and observed that each individual on receiving a present, immediately offered to the donor the choice of their property, the most valuable of which, in their own estimation, were small rolls of dried salmon-skins, and little pieces of flint for the purpose of making knives and arrows. Poor Neakoodloo, on receiving two knives for himself and wife, appeared quite distressed at my refusing the dirty pieces of stone and fish-skins which he offered me; and fancying that I rejected them as not being good enough, he took a sharp flint, and began cutting up a large seal-

1824. August.

1824. August. skin, the only one in his possession, for my acceptance; on my refusing this also, he again warmly repeated his thanks for the knives.

The women were slightly tattooed on the face in small dots, probably from their having no needles of sufficient fineness to draw a sooted thread under the skin in lines, as is the usual Esquimaux custom.

The hands were not marked, and their hair was twisted into a short club, which hung over each temple. I purchased two little bone ornaments, which had been used as pendants to these locks, and on one of them were about a dozen small irregularly-shaped pieces of lead, strung alternately with square-cut pieces of the claw of some bird. The women wore no breeches, but had little thigh wrappers, and very high boots, which, with their very ragged jackets, resembled those of the natives of the Savage Islands.

The costume of the men was also somewhat of the same kind as of the above people, but all had much shorter breeches, and their knees were more exposed. As they wore gloves, the reversed skin of the dovekie, merely dried, without farther preparation, and the long stiffened neck part pointed forward in such a manner as to be always in the way.

The only other peculiarity consisted in each man having an immense mass of hair as large as the head of a child, rolled into the form of a ball, and projecting from the rise of the forehead. One of these bundles, which I caused a man to open, consisted of six long strings of his own locks, originally plaited, but now so matted with dirt, deer's fur, &c., as to resemble a rough hair tether. These extraordinary tresses were bound tightly together at their base, and measured above four feet. 1824. August.

I found that the place whence the salmon were procured, was a rapid little streamlet, running over a gravelly bed, at about a hundred paces from the tents. Its breadth might be about forty yards, and a dam was erected across it, behind which the fishermen stood and speared the salmon as they advanced up to the little wall. At half a mile from the tents, was a large winter hut standing near the sea-beach, but I had not time to visit it. On our return to the boats, I desired the natives to open their salmon stores, and bring a quantity of fish after us, which they gladly acquiesced in, and we carried off a large and most welcome supply to the ship. Not one of the strangers begged, or became in any way troublesome, but even to the moment of our

1824. August. departure, conducted themselves so as to shew us how grateful they were for our presents to them.

From their total want of iron, and from their extreme poverty, I am led to imagine that these people had never before seen Europeans; although it is not improbable they may have observed the Hudson's Bay ships pass at a distance in the offing, on some occasions, when they may have been driven by bad weather a little out of their annual course. The good behaviour of these poor savages was therefore quite natural to them, and the fearless confidence which led Neeakoodloo to put himself into our power, is the strongest proof of their ignorance of guile or treachery.

We obtained the latitude 62° 29′ 50″ N., and longitude, by afternoon sights, 82° 48′ 45″ W., but were not able to ascertain the rise and fall of the tide, owing to the unfavourable nature of the beach, which ran out for nearly a mile into flat shingly shoals, between which were lakes at low water, thickly filled with tangle and other sea-weed, from whence proceeded a most noisome smell. A few muscle-shells were picked up amongst this, but none of the fish in a live state.

Having reached the ship at one P.M., we

weighed with the flood, which here came from the north eastward, and ran south-west about ten miles, when, at eight P.M., we anchored in twelve fathoms, at four miles from the shore. 1824. August.

The night was fine, and at four A.M. on the 28th, with the wind from the northward, and a heavy short sea, apparently caused by a weather tide, we weighed, and continued to run south-west along the low beach, until eleven A.M., when being off a low point, at eight miles from our last anchorage, we saw a shoal running about five miles to seaward, from N.N.E. to S.S.W. Keeping an offing, we rounded this, and then found the land, which was still low, to trend from behind the point, W.S.W., which I take to be "Carey's Swan's Nest" of Button. Several store-houses, and two winter-huts, were seen on the beach, but no natives appeared. The soundings, at about eight miles from the shore, were rather irregular, but never above twenty, or lower than ten fathoms. The sea was much agitated, a great quantity of tangle weed floating about. Having stood in for the shore, a strong tide assisted us until evening, when having ran west south-west about twenty miles since noon, we anchored, with the wind from

1824. August. the north-west, at two miles from the shore, in thirteen fathoms. The night was calm, with incessant drizzling rain. From our having carried a south-westerly tide with us for above twelve hours, I have reason to suppose that the tides meet at Carey's Swan's Nest, and that the flood runs thence to the eastward.

At four A.M., on the 29th, the wind being light and contrary, with continued rain, I landed with two boats to procure water abreast of the ship, on a flat lime-stone beach, lying in long irregular ridges to seaward; and the tide having ebbed a little, the small rippling sea marked the position of the shoals by breaking on them. Near our landing-place were the remains of a large Esquimaux establishment, and had it not been for the state in which we found some stored provisions, I should have imagined that no person had been there for some years. These hoards were carefully deposited in small buildings, such as I have before described, and consisted of the bodies of skinned birds, suspended by the legs, pieces of walrus, carcasses of seals, bags of blubber, and one leathern sack full of king-ducks, uncased, and with all their feathers yet on, smelling most offensively. On a high pile of stones, near the beach, were placed a

broken bow, a flint arrow, and knife, with a coarsely-constructed spear, and some fragments of skin and walrus flesh. These articles may probably have been the property of some man who lay buried near the pile, but I could discover no grave. Not far from this, and near a very small hut, built of peat, was a large inverted cooking-pot, composed of thin slabs of lime-stone, very clumsily cemented together; and beneath it was a flint knife, a piece of ivory, and a short splinter of decayed drift wood. Some sledge runners, of the whale's jaw, lay buried beneath a few large stones; and as they were quite black with soot, it is probable they had answered the purpose of roof-rafters to some winter-hut. Several other long spars of bone were lying round in the same smoky state; and as no wood is procured in this desolate region, they may be considered as the store timber of the poor Esquimaux. Eight or ten double piles of stones, for the purpose of supporting canoes, were erected along the beach; and farther inland stood six large bone, or winter, huts, in a very dirty delapidated state; and as mosses and grasses were growing on their seats and sleeping places, they must have been long forsaken. Of the immense quantity of bones

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1824. August. which lay scattered around, those of the deer were most numerous. At a short distance from the shore, on one of the shingle ridges which intersected the swamps, I found a flint knife lying near a small pile of stones, under which was another knife, an arrow, a dark flint for making cutting-instruments, and two little bits of decayed wood, one of which was modelled like a canoe. Close to this was a larger mound, which contained a dead person, sewed up in a skin, and apparently long buried. The body was so coiled up, a custom with some of the tribes of Esquimaux, that it might be taken for a pigmy, being only two feet four in length. This may account for the otherwise extraordinary account given by Luke Fox, of his having found bodies in the islands in the "Welcome" which were only four feet long.

Near the large grave was a third pile of stones, covering the body of a child, which was coiled up in the same manner. A snow buntin had found its way through the loose stones which composed this little tomb, and its now forsaken, neatly built nest, was found placed on the neck of the child. As the snow buntin has all the domestic virtues of our English red-breast, it has always been

Drawn by Capt.n Lyon, R.N.
Engraved by Edw.d Finden

considered by us as the robin of these dreary wilds, and its lively chirp and fearless confidence have rendered it respected by the most hungry sportsmen. I could not on this occasion view its little nest, placed on the breast of infancy, without wishing that I possessed the power of poetically expressing the feelings it excited. Both graves lay north-east and south-west. Before going on board I placed boarding-pikes, men's and women's knives, and other articles, which might be useful to the poor Esquimaux, on the huts and various piles of stones. 1824. August.

The beach, above high water-mark, is composed of large masses of shingle lime-stone, in which were several imperfect fossil remains, and a few pieces of madrepore were also picked up. The greatest attraction, however, was in the quantity of fine flints and pretty veined agates, which lay broken all along the beach. It would appear from the weapons found on this day, as well as others purchased before, that the natives only make use of the dark-coloured flints, which may be in consequence of their finding the veined stones more liable to split.

The whole country is very flat, full of shallow lakes and swamps, and near the huts, the

1824. August. grasses were flourishing most luxuriantly. It is remarkable that no sorrel should have been found in our three visits to this shore, and that the ground willows were so small, that their leaves did not rise above the mosses, but grew entwined amongst them. I picked up about a dozen dead shells of muscles.

At thirty minutes after nine, when I left the beach, it was low water. At eleven the tide turned in the offing, and flowed from the eastward. We now observed in-shore of us a long overfall, having deep water within it, and running at a mile from the beach to a low point five or six miles w.s.w. of us.

Weighing at one P.M., we lay along the shore with the wind from the southward, until arriving at the above point, to which I gave a wide birth, as a heavy surf was breaking over a long shoal which ran from it, and the wind was freshening from the north-west, whence it soon blew a gale, and brought us under close-reefed topsails. A strong weather tide rose so short and high a sea, that for three hours the ship was unmanageable, and pitched bowsprit under every moment. We now found that although with our head *off* this truly dangerous shore, we were nearing it

rapidly, and driving bodily down on the shoal. I therefore kept away a couple of points, a plan we now constantly followed, as it was the only method of keeping head-way on the ship in even a moderate sea; and it was more to our advantage than making eight points lee-way. By so doing we made a little south-west offing, but were so uneasy, that I expected the masts to go every moment, and all hands were kept on deck in readiness. The tiller broke twice adrift, and two men were bruised*. 1824. August.

Standing all night s.s.w., the wind came round and moderated from south-west on the morning of the 30th, but a turbulent short sea was still running. We then kept as nearly N.W.b.N. as our very uncertain compasses, and an occasional glimpse of the sun, would permit. At four A.M. the land of Southampton, still a lee-shore, was seen very distant in the north-east. At dawn we obtained the latitude and sights, so that if this land is the south-west extreme of the Island of Southampton, (and we had seen nothing to disprove it,) Cape Southampton is laid down 2° to the westward

* From the extraordinary action of the sea, and our known position, it is evident that a constant "race" is to be found off this spot, and subsequent experience has confirmed this conjecture.

1824. August. of its true position. Its latitude is as correct as could be expected, and is by a meridian altitude of Mirza, under the pole, 61° 50′ 35. The longitude by sights of α Lyra is 84° 2′ 15″. We stood on all day N.W.b.N., still keeping the ship a couple of points free, to prevent her driving bodily to leeward, which she did whenever she had not steerage-way. Our soundings continued regular between forty and fifty fathoms; and no land was seen, so that I was in hopes we had at last entered "The Welcome." Our noon lat. 62° 14′ 38″, and long. 84° 29″ 54″, placed us exactly on Southampton Island, and two degrees eastward of Cape Southampton of the charts.

In the forenoon watch our larboard compass, which with two others had shewn our head N.b.W., (which with three points and a half westerly variation, agreed with the sun's bearing in giving a N.W.½W. course,) suddenly pointed E.N.E., and no tapping or motion would keep it at any other point for two or three minutes, after which it as suddenly recovered its agreement with the others, and continued quite correct. We now, from repeated observations, discovered, that when our head was nearly north by compass, the deviation was three points and a-half west, but when

between north-west and west, it amounted to eight points, while with the head to the southward, the compasses would generally rest wherever they were directed by the finger, and sometimes each persisted in maintaining a direction of its own. Barlow's plate now became useless, and its want of effect was decided by finding Gilbert's compass, while under its immediate influence, the dullest in the ship. Ellis, in his account of the expedition of the Dobbs and California, 1746, says, " I cannot help taking notice in this place" (while off Chesterfield inlet,) " of an accident that happened to us, and which as it was the object of our astonishment then, has often been the subject of my serious thoughts. In short, amongst these islands, and in sailing through the ice, the needles of our compasses lost their magnetical qualities, one seeming to act from this direction, and another under that, and yet they were not for any considerable time constant to any. We laboured to remedy this evil by touching them with an artificial magnet, but to very little purpose, for if they recovered their powers by this means they presently lost them again." P. 220. London edit. 1748. 1824. August.

With a light wind, but heavy sea, from the south-west, we made a N.W.b.N. course, over

1824. August. the place assigned to Southampton Island, with regular soundings between seventy and fifty fathoms. At midnight the wind came fresh from the westward with rain, and as I feared running over a spot where land is laid down as having been discovered, I lay to until day-break of the 31st. It was now for the first time that I observed, in changing the ship's head from north (compass) N.W.b.N. (true) and rounding to *port*, all the compasses changed inversely, N.b.E., north-east to E.b.N.: at which point the ship's head remained while hove to all night, although the wind was unchanged from south-west; thus shewing, as her head was in fact W.N.W., a deviation of fifteen points westerly, with this direction increasing gradually as she came round from north by compass.

At four A.M. on the 31st, I kept away to *starboard*, and the compasses remained quite steady until we had fallen off about four points, all then flew round at the same moment, and when by the pole-star her head was N.W.b.N., all again pointed north most correctly as they had done before. These extraordinary changes in the deviation of the needle could not fail to cause me great anxiety during the long and dark nights, as I was unable, unless our head

was north, to know when we approached the shore, and having hitherto found the land so erroneously laid down, it was but natural to suppose that we should find the American coast also to the eastward of its assigned place. The wind fell on the morning of the 31st, and before noon a calm, with thick fog, set in. Although meridian altitudes and sights were obtained, we yet remained entirely in the dark as to our relative position with respect to the land on either side of us. A light breeze after noon enabled us to keep north-west, as nearly as I could judge, and in the evening we made very low land, distant about ten miles. Its northern extreme bearing N. 23° 43′ E. and southern S. 86° 18″ E. about fifteen miles. We found ourselves setting as if with a current towards the northern point, and were confirmed in this conjecture by evening sights, giving twelve miles easting since noon, although we had steered north-west (true.) Throughout the night we steered north-west by the pole-star, and ran under easy sail. Our soundings at ten P.M. were thirty fathoms, between which and twenty-eight they varied continually until thirty minutes after two A.M. on the 1st of September, when we

1824. August.

1824. Sept. shoaled to nineteen *. Fearing danger, I turned the hands up, but having shortly deepened to twenty-seven and twenty-five, again sent them below. At six A.M. having quickly shoaled to nineteen, running N.N.W. from midnight, I shortened sail, but came to seventeen at dawn, when we discovered land bearing N.N.W. and apparently not continuous to the right, but a thick fog which hung over the horizon limited our view. As our run had been about fifty miles N.N.W., and as I expected to find the American shore east of its position in the charts, I conceived that this would be Cape Fullerton of Middleton, and therefore kept it on our larboard hand, intending to run past it at five or six miles, which was its distance at this time. We soon, however, came to fifteen fathoms, and I kept right away, but had then only ten; when being unable to see far around us, and observing from the whiteness of the water that we were on a bank, I rounded to at seven A.M., and tried to bring up with the starboard anchor, and seventy fathoms chain, but the stiff breeze and heavy

* On our return down the Welcome we discovered a small island, within which we must at this time have passed.

sea caused this to part in half an hour, and we again made sail to the north-eastward; but finding we came suddenly to seven fathoms, and that the ship could not possibly work out again, as she would not face the sea or keep steerage way on her, I most reluctantly brought her up with three bowers and a stream in succession, yet not before we had shoaled to five and a half. This was between eight and nine A.M. The ship pitching bows under, and a tremendous sea running. At noon the starboard bower-anchor parted, but the others held. 1824. Sept.

As there was every reason to fear the falling of the tide, which we knew to be from twelve to fifteen feet on this coast, and in that case the total destruction of the ship, I caused the long-boat to be hoisted out, and with the four smaller ones, to be stored to a certain extent with arms and provisions. The officers drew lots for their respective boats, and the ship's company were stationed to them. The long-boat having been filled full of stores which could not be put below, it became requisite to throw them overboard, as there was no room for them on our very small and crowded decks, over which heavy seas were constantly sweeping. In making these pre-

1824. Sept. parations for taking to the boats, it was evident to all, that the long-boat was the only one which had the slightest chance of living under the lee of the ship, should she be wrecked, but every officer and man drew his lot with the greatest composure, although two of our boats would have been swamped the instant they were lowered. Yet such was the noble feeling of those around me, that it was evident that had I ordered the boats in question to be manned, their crews would have entered them without a murmur. In the afternoon, on the weather clearing a little, we discovered a low beach all around astern of us, on which the surf was running to an awful height, and it appeared evident that no human powers could save us. At three P.M. the tide had fallen to twenty-two feet, (only six more than we drew,) and the ship having been lifted by a tremendous sea, struck with great violence the whole length of her keel. This we naturally conceived was the forerunner of her total wreck, and we stood in readiness to take the boats, and endeavour to hang under her lee. She continued to strike with sufficient force to have burst any less-fortified vessel, at intervals of a few minutes, whenever an unusually heavy sea passed us. And, as the water was so

shallow, these might almost be called breakers rather than waves, for each in passing, burst with great force over our gangways, and as every sea "topped," our decks were continually, and frequently deeply, flooded. All hands took a little refreshment, for some had scarcely been below for twenty-four hours, and I had not been in bed for three nights. Although few or none of us had any idea that we should survive the gale, we did not think that our comforts should be entirely neglected, and an order was therefore given to the men to put on their best and warmest clothing, to enable them to support life as long as possible. Every man, therefore, brought his bag on deck and dressed himself, and in the fine athletic forms which stood exposed before me, I did not see one muscle quiver, nor the slightest sign of alarm. The officers each secured some useful instrument about them for the purposes of observation, although it was acknowledged by all that not the slightest hope remained. And now that every thing in our power had been done, I called all hands aft, and to a merciful God offered prayers for our preservation. I thanked every one for their excellent conduct, and cautioned them, as we should, in all probability, soon appear before our Maker,

1821. Sept.

1824. Sept. to enter His presence as men resigned to their fate. We then all sat down in groups, and, sheltered from the wash of the sea by whatever we could find, many of us endeavoured to obtain a little sleep. Never, perhaps, was witnessed a finer scene than on the deck of my little ship, when all hope of life had left us. Noble as the character of the British sailor is always allowed to be in cases of danger, yet I did not believe it to be possible, that amongst forty-one persons not one repining word should have been uttered. The officers sat about, wherever they could find shelter from the sea, and the men lay down conversing with each other with the most perfect calmness. Each was at peace with his neighbour and all the world, and I am firmly persuaded that the resignation which was then shewn to the will of the Almighty, was the means of obtaining his mercy. At about six P.M. the rudder, which had already received some very heavy blows, rose, and broke up the after-lockers, and this was the last severe shock which the ship received. We found by the well that she made no water, and by dark she struck no more. God was merciful to us, and the tide, almost miraculously, fell no lower. At dark, heavy rain fell, but was borne with patience,

for it beat down the gale, and brought with it a light air from the northward. At nine P.M. the water had deepened to five fathoms. The ship kept off the ground all night, and our exhausted crew obtained some broken rest. 1824. Sept.

At four A.M. on the 2nd, on weighing the best bower, we found it had lost a fluke, and by eight we had weighed the two other anchors and the stream, which were found uninjured. The land was now more clearly visible, and the highest surf I ever saw was still breaking on it, and on some shoals about half a mile from the shore. Not a single green patch could be seen on the flat shingle beach, and our sense of deliverance was doubly felt from the conviction that if any of us should have lived to reach the shore, the most wretched death by starvation would have been inevitable. In standing out from our anchorage, which in humble gratitude for our delivery, I named the "Bay of God's Mercy," we saw the buoy of the anchor we had lost in ten fathoms, and weighed it by the buoy rope, losing therefore only one bower anchor. We now hoisted the long boat in, and an occasional glimpse of the sun enabled us to determine the situation of our recent anchorage, which was in lat. 63° 35′ 48″, long. 86° 32′ 00″. The

1824. Sept. land all round it was so low that it was scarcely visible from the deck at five miles' distance, while the point which I had taken for Cape Fullerton, and which I named after Mr. Kendall, (assistant surveyor,) was higher than the coast of Southampton hitherto seen, although still low land. The extreme of the right side of the bay was named after Lieutenant Manico. Keeping abreast of Cape Kendall, and steering west in from ten to thirteen fathoms, at six or eight miles off, at seven P.M. we anchored in thirteen fathoms. The weather was calm, with a heavy ground-swell setting for the shore. The ship being now somewhat to rights, I called the hands aft, and we offered up our thanks and praises to God, for the mercy he had shewn to us. All hands then turned in, and the ship lay quiet for the night.

It will be seen by the reduced chart, that the land of the Bay of God's Mercy, lies immediately in the centre of the Welcome, which is in consequence, considerably and most dangerously narrowed by it. Hence it is evident that although Southampton Island is laid down with a continuous outline, it has in fact never been seen, except at its southern extreme. This but too clearly established fact

could not fail to cause me great anxiety, and we were only enabled to run during the daylight, and not even then if the weather proved thick, for our compasses being of no use, we were helpless when the sun was clouded. In addition to this, we had been convinced by experience that the ship would never work off a lee shore, and our leads were in consequence kept going night and day, to the great fatigue of the men; who, however, were uncomplaining, as they were aware that by this alone we could obtain timely notice of an approach to land, and be enabled to keep the ship distant from it. 1824. Sept.

At four A.M. on the 3d, we weighed, and with an easterly wind, stood, as near as we could judge, W.S.W., at eight miles' distance from the shore. By thirty minutes after seven in the same parallel, we shoaled to seven fathoms, and kept away due south for deeper water. In two miles run we had sixteen fathoms, and then hauled up occasionally as the soundings favoured us, from sixteen to ten fathoms, very irregular bottom. At eleven A.M. we had deepened to thirty, and then kept N.N.W. as we thought, no sun being in sight. Small rain and a fresh wind set in, and after noon, we fancied that the loom of

1824. Sept. land lay a-head of us. At four, however, a heavy gale from E.N.E. brought us under main-top-sail and trysails, and we went on the larboard tack, as promising the longest drift. The soundings continued during the night at from eighty to ninety-five fathoms; a heavy sea sent us as usual dead to leeward, S.W., and our compasses on this tack were useless.

The gale continued all the 4th, and as our allowance of water was reduced to a quart per diem, only half a ton remaining in the ship, I decided on killing our two little ponies, for their hay had all been thrown overboard to clear the decks on the 1st., and their constant exposure to the wash of the sea over the forecastle, on which it was requisite in bad weather to suspend them in slings, was reducing them very fast. They were accordingly shot, to the infinite regret of all hands, as they were very great favourites. In the evening we had shoaled our water gradually, from ninety-three at midnight of the 3d, to forty-seven fathoms, and in wearing ship had only forty-five, which led me to suppose that we had neared the extensive shoal off Cape Kendall. On standing with our head N.N.W., but driving west, we deepened gradually to ninety-five fathoms at midnight. The gale blew with undiminished violence all the

5th, but towards noon the sky began to break, and we obtained observations. The wind, from the sun's bearings, was now found to be N.b.E. In the evening a bright arch rose in the north-west, and we quickly found that the gale had shifted with increased violence to that quarter. By night not a cloud was to be seen, and there was every indication of a decided north-west gale. During the first watch, while wearing, the state of our compasses was found as shewn in the Appendix, corresponding exactly with our observations for three days before, which may therefore be depended on. 1824. Sept.

In the act of wearing, we shipped some very heavy seas over all, but were now so accustomed to this, that it did not distress us. Our soundings throughout the day had varied from sixty to ninety fathoms.

The nights had now become very long and dark, and the lateness of the season, with our slow progress, gave me great anxiety for the ship, situated as she was in a narrow channel of the most uncertain description, and constantly exposed to the severity of equinoctial gales. I wished to have found some sheltered anchorage in which to water, and at the same time to examine our rudder, which was evidently loosened by the blows it had received;

1824. Sept. but the whole coast hitherto seen, had neither an inlet, nor a single protected indentation.

The morning of the 6th was beautifully clear, but the gale continued undiminished, although by noon it had slowly veered round to west. After noon it moderated, and the sea fell, so that in the evening we made sail, and ran a few miles to the northward. At midnight we hove to on the starboard tack, as the night was very dark, and the stars by which we steered were obscured. The soundings as we lay to were very regular. At twilight on the 7th, I went on deck, intending to keep the ship her course, when I found her head N.W.b.N. on the starboard tack. Her course being north (true,) I would under any other circumstances have kept a close luff, but, not trusting to the compasses, I *wore* ship, and she having by compass shifted twenty-nine points in going round, came to north-compass, at which there was now no magnetic error. The wind, being a-beam, must therefore have been west. As we stood on, the breeze gradually freshened to a gale from N.N.W., but we obtained sights, and towards noon the land was seen extending from N.N.W. to north. This we knew must be the land somewhere near Cape Fullerton, and as but little sea arose, I carried on, even although

we dipped the waist hammocks under, to reach a sheltered anchorage before night. The wind blew with such violence as to cover the sea with one continued foam, but we succeeded in nearing the land, and, having at four P.M. previously furled all the sails, brought up with two bower anchors and seventy fathoms chain, in fifteen fathoms, at four miles from the land, off which the heavy gale blew down to us. Now it was we felt the happiness of being quietly at anchor; the ship's company had been casting the deep sea lead every hour in deep water, and in shoal, every quarter, for six days and nights, which had kept them constantly wet at a temperature rarely above the freezing point; yet by this labour alone had I been able to keep the ship in safety during the last week of heavy gales. In the evening I spliced the main brace, and issued an extra pint of water; and the singing and merriment which prevailed between decks, plainly evinced the value my people placed on an evening of rest. 1824 Sept.

The 8th was fine and clear, but the gale very strong. Our position by observation accorded so well with Middleton's chart, that it was evident we had anchored between Whale Point, and Cape Fullerton. The wind having moderated towards evening, I was induced to send

1824. Sept. two boats for water, and Lieutenant Manico and Mr. Kendall went in them, the latter gentleman to obtain angles with the theodolite. The *flood* tide was here observed to come decidedly from the south-west, as the ship swung to it while the wind continued fresh; but I think it may, from the trending of this part of the coast, be rather an eddy, than the true tide, influenced in all probability by the outset from Chesterfield Inlet, whence, Ellis tells us, the ebb runs ten hours, while the flood is only two*.

The officers on their return at midnight with a cargo of water, reported that the whole of the coast on which they had landed, was of the most barren description, of rugged, red, and gray granite rocks, with the strata running in a north-west direction. Several small rocky islets were scattered along the shore, and salt, as well as fresh-water lakes, extended to a considerable distance inland. No traces of natives were observable. Five deer were seen, with a quantity of ducks in a moulting state. The boats were left by the tide half a mile up the

* The rise and fall was found by the leads to be twenty-three feet.
High water, full and change, four o'clock.
Velocity of the tide, one mile.
Direction of ebb, W.S.W. Direction of flood, E.N.E.

rocks, whence it required great labour to carry them to the water, in consequence of the rugged state of the coast. At thirty minutes after four, A.M., on the 9th, we weighed, and ran along the land which trended E.N.E. At forty minutes after eight, we arrived abreast of the Eastern Point, seen from our anchorage, at four miles from which the soundings were very irregular, varying suddenly between twenty and nine fathoms, and often being two or three fathoms deeper on one side of the ship than on the other. Rounding this uncertain place, the land stretched away north-east to a cape about six miles off, near which was a small rocky isle, surrounded with numerous dangerous shoals, awash with the water. While abreast of these, and four miles distant, the water shoaled in two casts of the lead from twenty-five to seven and a half fathoms; and we therefore hauled to the eastward, when having given the land a wide birth, and deepened our water to twenty fathoms, we hauled up N.b.E. for a distant point, "Cape Dobbs?" or "Cape Fry?" but at one P.M., from having a cast of twenty-five fathoms, and in the next only twelve, I was again obliged to steer east; and, the breeze having freshened to a southerly gale, to close reef the topsails. The weather

1824. Sept.

1824. Sept. now became thick with rain, and a heavy sea quickly arose. The soundings increased until three P.M., from twenty to thirty-one fathoms. A few whales were seen in the afternoon, and it is remarkable that this should be the first time of meeting with them, and also that we should not have seen either a narwhal or a bear, although we had passed through so great a quantity of ice in Hudson's Strait. Having hauled up to north-east at four P.M., and while running five knots before a heavy sea, Mr. Harding saw a white space on the water, having all the appearance of a sandy shoal, he instantly kept away, and running on deck I saw it within half a cable's length of our quarter, while at the same moment a cast of the lead gave no bottom with forty fathoms. An appearance, as of a line of breakers, was also seen close a-head, and some of the people on the forecastle declared they saw the land beyond them. We wore, and stood off on the starboard tack; and now having no weather shore to afford us either shelter or anchorage, we found ourselves obliged to continue under sail all night, in this narrow and extremely dangerous channel, to the great anxiety of all hands, and sad fatigue of the men, who were employed unceasingly with deep sea and hand

leads, at a temperature of 28°. Rain fell heavily with the gale, and our prospects were most unpromising, when at ten P.M. a low red line was observed to the westward. It slowly arose as an arch, and the whole of the black clouds began to recede from our heads; a blue and transparent sky in the west, soon discovered a few stars shining, and in half an hour the gloom which had shadowed us, fell like a dark curtain to the eastward: as it sank, the full moon burst forth from behind it with the greatest brilliancy, and in less than an hour from the first welcome appearance of the fiery streak on the horizon, not an angry cloud was to be seen. A magnificent aurora, composed of all the prismatic colours, flashed wildly and beautifully for a short period, and, as we expected, a heavy north-west gale succeeded to that from the southward. The sea, however, fell, and we saw distant land in the west. Throughout the night we worked in the centre of the "Welcome," guided by our leads, and never having less than thirty or above fifty fathoms. Our people suffered a great deal by this most requisite labour, and the hands of many were in so very sore a state, that I caused canvass mittens to be made for the use of the watch on deck; but on this, as on all other

1824. Sept.

1824. Sept. occasions, their cheerful alacrity and good-humour was above all praise.

The wind had rather decreased at daylight on the 10th, and it was found by the bearing of a remarkable hummock, that we had lost no ground during the night. As the weather moderated, we made sail N.W.b.N., but an uneasy sea prevented our keeping head way. A whale was seen in the forenoon. At three P.M. the land of some part of Southampton, possibly the mountains on its eastern shore, was visible to the north-east, from aloft, while at the same time the apparent termination of the American coast at Cape Dobbs, was north, about thirty miles.

A dry day enabled us to put the people's clothes in order again, yet, such had been our ill success in weather, that the rising of a cloud, or the slightest increase of wind, led us to fear the coming of a gale; in fact, every breeze for eleven days past had freshened to one before it went down, and the change of wind which succeeded rarely continued for above three hours, but it blew a gale also.

Our barometer had indicated every alteration in the weather with the greatest precision, and never was a weather glass more frequently or more anxiously consulted, than was that of

the Griper. Lying north-east during the afternoon, we slowly neared the Southampton shore, and at eight P.M. the wind having freshened considerably from N.N.W. tacked and stood off again. We had at this time fifty fathoms,—twelve miles from the shore, and I determined on standing off under easy sail for the night, but lying west (true) directly off the land, we began to shoal gradually, and at one A.M. on the 11th, had only thirty-nine fathoms. We in consequence stood *for* the shore, and again deepened to fifty. The night was cloudy and the temperature 28°, but the moon was occasionally seen, and was of great assistance, the compasses having again changed their errors. 1824. Sept.

Such indeed was the uncertain dependence which could be placed on the compasses, that they were but seldom used, and we depended entirely on celestial bearings, whenever they could be obtained. For this purpose a board had been some time since constructed, having a moveable tin compass on its centre, round which were marked the hours of the day.

The south point of this compass was directed to the hour at which the body seen would come to the meridian, and by pointing the hour at which it was observed towards it, the ship's course at the moment was easily

1824. Sept. ascertained. This simple method, however, subjected us to great anxiety and inconvenience, as the weather sometimes continued thick for two or three days and nights, and it was then impossible to run in any direction. Yet, by this contrivance alone were we obliged to steer for above six weeks.

The forenoon of this day was cloudy, and at noon we stood into thirty-three fathoms at about eight miles from the shore of Southampton, which is here considerably higher, with a gradual ascent, than any other part of it we had yet been off. The wind being scant, and the ebb in our favour, we again stood out for an offing, but soon after noon, on the weather falling calm, and finding we neared the shore, I brought up in thirty-three fathoms, with the stream at five miles from the beach. The American shore was at this time visible from the mast-head at about thirty miles distant, and extending from north-west to W.N.W. with a broad apparent opening, probably the entrance of the "Wager River," between its extreme points.

I sent Messrs. Manico and Kendall in two boats for water, and to make observations, and while awaiting their return, we found the *flood*-tide setting to the southward half a knot an

hour, but the bottom was too irregular to allow of our accurately marking its rise. A light breeze sprung up from the eastward as the boats came on board in the evening, and I endeavoured to beat nearer to the shore and anchor for the night, but the wind was too scant, and the tide prevented us. The officers reported to me that they had found the soundings to decrease with great regularity as they approached the shore, and when at a mile from it, they had fourteen fathoms, carrying it into two fathoms at landing. 1824 Sept

The beach was of shingle lime-stone, thrown up into long ridges by the action of the sea, and it trended N.N.W., and S.S.E., with many small points projecting about half a mile from it, and forming shallow little bays. The country inland presented a fine level appearance for several miles, when the land rose gradually into moderately high hills. The plain was rich in the usual Arctic plants, but the flowers had all withered. Fresh water lakes were very numerous, and covered with ice two inches in thickness, which accounted for a dazzling refracted glare which had been observed over the shore all day. Five deer were seen, and fourteen eider and pintail ducks, in a moulting state, were killed. The vertebræ of

1824. Sept. a whale, and the bones of other animals, were lying scattered on the beach near a long forsaken winter hut, and Mr. Kendall found a grave in which a body, apparently disinterred by some animal, was lying with the head to the north-west. Near the hut were a quantity of stones ranged in pairs and forming a large semi-circle, a short stone supporting a long one, thus.

The tide was observed to flow rapidly between two and three P.M., quickly filling all the little bays, and the high water-marks on the beach indicated a rise of twenty-three feet.

The night being very fine, I determined on running slowly at five or six miles' distance from the shore, which appeared to trend N.b.W., and to be guided by the regularity of the soundings, which at midnight had increased from thirty-three to forty fathoms. We had steered up to this period by the moon and pole-star.

A.M. of the 12th, we gradually began shoaling to thirty-two, thirty, twenty-six, and at four A.M. to twenty-two fathoms; when fancying we were near some part of Southampton Island, which we had not yet seen, I kept away a couple

points, but at thirty minutes after four, saw steep, rocky, and broken land, with many rugged islets off it, on our larboard bow, to which we must have been swept by some very rapid current or indraft; from its appearance, as it was not continuous to the southward, but trended away westerly, I am led to suppose it to have been Cape Montague, which is said to bound the northern entrance to the "Wager." 1824. Sept.

As the breeze freshened at daylight from the north-east, and we were only in seventeen fathoms, rocky bottom at four miles from the islands, I tacked at five, and made all the sail we could carry, to work out of the indraft. We got but slowly off, for being so much below her bearings, the ship would not stand up under much sail, and towards noon saw Southampton Island to the eastward about eighteen miles. I was, for a time, in hopes of getting under its lee, but the wind soon increased to a gale with cutting showers of sleet, and a sea began to arise. At such a moment as this, we had fresh cause to deplore the extreme dulness of the Griper's sailing, for though almost any other vessel would have worked off this lee shore, we made little or no progress on a wind, but remained actually pitching forecastle under, with scarcely steerage way, to preserve which

1824. Sept. I was ultimately obliged to keep her nearly two points off the wind. We, however, persevered in our endeavours to make easting under foresail and close-reefed main-topsail, but at thirty minutes after one, P.M., with our head N.N.W., we quickly shoaled from thirty to twenty fathoms, and as we could not see a quarter of a mile round us, in consequence of the heavy snow, I turned the hands up to be in readiness for wearing; but the next cast gave ten, and I therefore luffed the ship to, and let go both bower anchors, which brought her up with seventy and eighty fathoms. I then let go the sheet anchor under foot. From the time of striking low soundings until this was done, the sails furled, and lower yards and topmasts struck, half an hour had not elapsed. In this sad dilemma, I would have endeavoured to wear the ship, although I knew not from the thickness of the weather, how close we might be to the rocks, but this manœuvre was unfortunately the most difficult for her to perform, and from her great depth in the water, she had on many occasions in strong gales, been a quarter of an hour in getting before the wind; but one alternative therefore remained, and valuable as our anchors were to us, and badly as the ship rode, I was obliged to attempt to bring her up. We

found that the anchors held, although the ship was dipping bowsprit and forecastle under, and taking green seas over all. These soon wetted every one thoroughly, and the lower deck was flooded before we could batten down the hatches. Thick falling sleet covered the decks to some inches in depth, and with all the spray, froze as it fell. 1824. Sept.

We now perceived that the tide was setting past us from the north-east at the rate of two knots on the surface, but by its action on the lead-line, and even the deep sea lead which it swept from the bottom, it was running at a far more rapid rate beneath. This, in addition to the heavy set of the sea, strained the ship very much, and the bitts and windlass complained a great deal; the hands, therefore, remained on deck in readiness for all emergencies. To add still farther to our anxiety, two or three streams of ice, having some very deep solid pieces amongst them, were seen driving down to us in the evening, and threatened the loss of our bowsprit, which at every pitch dipped quite under water, but it only fell on light pieces, and all the damage we sustained, was the loss of the bobstays, and larboard iron bumpkin. The tide appeared to slack at six P.M., at which time we had thirteen fathoms and a half,

1824. Sept. and the ship rode somewhat more easily at her anchors. At midnight it was low water, eight fathoms and a half, shewing a rise and fall of thirty feet. The night was piercingly cold, and the sea continued to wash fore and aft the decks, while constant snow fell. As the lower deck was afloat, our people and all their hammocks thoroughly soaked, no rest could be obtained.

Never shall I forget the dreariness of this most anxious night. Our ship pitched at such a rate, that it was not possible to stand even below, while on deck we were unable to move without holding by ropes which were stretched from side to side. The drift snow flew in such sharp heavy flakes, that we could not look to windward, and it froze on deck to above a foot in depth. The sea made incessant breaches quite fore and aft the ship, and the temporary warmth it gave while it washed over us, was most painfully checked by its almost immediately freezing on our clothes. To these discomforts were added the horrible uncertainty as to whether the cables would hold until day-light, and the conviction also that if they failed us, we should instantly be dashed to pieces; the wind blowing directly to the quarter in which we knew the shore must lie.

Again, should they continue to hold us, we feared by the ship's complaining so much forward, that the bitts would be torn up, or that she would settle down at her anchors, overpowered by some of the tremendous seas which burst over her. 1824. Sept.

During the whole of this time, streams of heavy ice continued to drive down upon us, any of which, had it hung for a moment against the cables, would have broken them, and at the same time have allowed the bowsprit to pitch on it and be destroyed. The masts would have followed this, for we were all so exhausted, and the ship was so coated with ice, that nothing could have been done to save them.

We all lay down at times during the night, for to have remained constantly on deck would have quite overpowered us; I constantly went up, and shall never forget the desolate picture which was always before .

The hurricane blew with such violence as to be perfectly deafening; and the heavy wash of the sea made it difficult to reach the mainmast, where the officer of the watch and his people sat shivering, completely cased in frozen snow, under a small tarpaulin, before which ropes were stretched to preserve them in their

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1824. Sept. places. I never beheld a darker night, and its gloom was increased by the rays of a small horn lantern which was suspended from the mizen stay to shew where the people sat.

At dawn on the 13th, thirty minutes after four, A.M., we found that the best bower cable had parted, and as the gale now blew with terrific violence, from the north, there was little reason to expect that the other anchors would hold long; or if they did, we pitched so deeply, and lifted so great a body of water each time, that it was feared the windlass and forecastle would be torn up, or she must go down at her anchors; although the ports were knocked out, and a considerable portion of the bulwark cut away, she could scarcely discharge one sea before shipping another, and the decks were frequently flooded to an alarming depth.

At six A.M., all farther doubts on this particular account were at an end, for, having received two overwhelming seas, both the other cables went at the same moment, and we were left helpless, without anchors, or any means of saving ourselves, should the shore, as we had every reason to expect, be close astern. And here again I had the happiness of witnessing the same general tranquillity as was shewn on the 1st of September. There was no outcry

that the cables were gone, but my friend Mr. Manico, with Mr. Carr the gunner, came aft as soon as they recovered their legs, and in the lowest whisper, informed me that the cables had all parted. The ship, in trending to the wind, lay quite down on her broadside, and as it then became evident that nothing held her, and that she was quite helpless, each man instinctively took his station, while the seamen at the leads, having secured themselves as well as was in their power, repeated their soundings, on which our preservation depended, with as much composure as if we had been entering a friendly port. Here again that Almighty Power which had before so mercifully preserved us, granted us his protection, for it so happened that it was slackwater when we parted, the wind had come round to N.N.W. (*along* the land,) and our head fell off to north-east, or seaward; we set two trysails, for the ship would bear no more, and even with that lay her lee gunwale in the water. In a quarter of an hour we were in seventeen fathoms. Still expecting every moment to strike, from having no idea where we had anchored, I ordered the few remaining casks of the provisions received from the Snap, to be hove overboard, for being stowed round the capstan and abaft the mizen-mast, I feared their fetching

1824. Sept.

1824. Sept. way should we take the ground. At eight the fore trysail gaff went in the slings, but we were unable to lower it, on account of the amazing force of the wind, and every rope being encrusted with a thick coating of ice. The decks were now so deeply covered with frozen snow and freezing sea-water, that it was scarcely possible, while we lay over so much, to stand on them; and all hands being wet and half frozen, without having had any refreshment for so many hours, our situation was rendered miserable in the extreme.

Standing with our head to the north-east, we deepened the water, but increased the sea and wind, which latter was alone of sufficient strength to stave the larboard waist boat against the side of the ship, and also to damage that on the quarter by the same means.

At eleven A.M. a wave filled and swept away the starboard waist boat, from which most providentially the lead's man had just been called, with her davits and the swinging boom. At noon a dim meridian altitude was obtained, and at two P.M. we observed Southampton Island from N.N.E. to E.b.S., very indistinctly, and distant eighteen or twenty miles, but could see nothing of the coast we had left, as it was still covered by dark clouds and snow-storms.

In the afternoon, having well weighed in my mind all the circumstances of our distressed situation, I turned the hands up and informed them, that "having now lost all our bower anchors, and chains, and being in consequence unable to bring up in any part of the Welcome; being exposed to the sets of a tremendous tide-way and constant heavy gales, one of which was now rapidly sweeping us back to the southward, and being yet above eighty miles from Repulse Bay, with the shores leading to which we were unacquainted; our compasses useless, and it being impossible to continue under sail with any degree of safety in these dark twelve-hour nights, with the too often experienced certainty that the ship could not beat off a lee-shore even in *moderate* weather, I had determined on making southing, to clear the narrows of the Welcome, after which I should decide on some plan for our future operations." 1824. Sept.

I could not, however, put my intention of bearing up into immediate execution, in consequence of the still continued gale, and the inability of the Griper to scud in any sea. We therefore passed the night in wearing and making short boards, guided entirely by the

1824. Sept. soundings. The thermometer was at 24°, but the cold was exquisitely painful to men who had been constantly exposed for two days and nights to the wash of a freezing sea, without any rest, or a single warm meal, and sounding, with hands nearly raw, every half hour with the deep sea lead, and frequently with the hand leads.

The morning of the 14th was fine but cloudy, and the wind, still from north-west, had decreased to a fresh breeze. Temp. 26°. After some hour's labour in breaking the ice from the decks and rigging, we succeeded in swaying up the lower yards and topmasts, and by ten A.M. set reefed courses, and close reefed topsails; steering south-west. It was now observed that the head of the foremast was much wrung, and there was every reason to fear that the bowsprit was injured. As the ship's company had no bedding but what was thoroughly soaked, and in our small between-decks we could not at this time dry it, I ordered all the store blankets in the ship to be lent to them, two to each man, until their own should be fit for use, for I feared their health would suffer, and indeed several cases of rheumatism had already appeared.

In the evening we made the American shore, and knew from our noon latitude and run, that we were off Cape Fullerton at dark. 1824. Sept.

We therefore kept the ship parallel with the shore, at about fifteen miles' distance, steering south-west as near as we could judge; one compass giving N.N.W., the other north-west, but an occasional glimpse of the moon, and a "blink" which lay over the snow covered land, were of the greatest assistance in keeping a course. We this day bent the hempen cable to our stream-anchor, intending it as a bower, and to a small kedge of four cwt. we bent the stream cable, but both together were too small to be depended on in any weather but a calm.

At thirty minutes after ten P.M. we suddenly shoaled our water to thirty fathoms, and then keeping north-east, to twenty, when shortening sail, I stood right off the shore and came to seventeen, on which I slowly wore, and steering our first course south-west, deepened to thirty; and by four A.M. of the 15th, to forty-nine fathoms; not, however, without having been under great anxiety, as our two little anchors were quite inadequate to hold us, if it had been requisite to bring to.

At day-light we saw the land to the westward at about eighteen miles, and made all

1824. Sept. sail south-west. If had kept on this course, as I before said, in order to clear the "narrows," in which another gale would, in our present helpless state, have been destruction to us.

It was now but too evident that we could no longer expect to pass up the Welcome, or indeed to approach any coast on which there was a probability of our requiring to anchor; more particularly as the shores we had hitherto seen, had not a single bay or indentation in them, much less a place of sufficient security to allow of our anchoring in it with a stream. The Wager alone is an exception to this; but the influence of its tides, which, according to Middleton, run five, and as is asserted by Ellis, eight or nine * knots, is felt for many miles above the entrance, and as the Griper's best sailing never exceeded six knots, it is hardly probable, even allowing she had the fairest wind, to suppose she could hold her own against the tide; and having no anchors, she was of course unable to approach the shores for the purpose of tiding it up. Douglas' Harbour and Deer Sound, are thirty and twenty leagues up the inlet, and if the gales in the former were strong enough to drive the California from her two anchors and put her in great

* Pp. 249, 250. London Edit. 1748.

danger*, we could have but little chance of riding in safety with only a stream anchor. But even supposing that I had succeeded in finding a wintering place, and being firmly frozen in, the same difficulties must have been again encountered the following year, and no advantages would have been gained. 1824. Sept.

I had at first an idea of running for Fort York, or Churchill, but as the shoals off these places are very dangerous†, and even the company's ships require pilots, and the advantage of particular tides to pass them‡, there was little reason to hope that we could succeed in doing so, as we could not now anchor to await the favourable time of tide, or even while a boat should be despatched for assistance to the factories, which are out of sight from the deck of a ship when anchored off "The Flats."

Marble Island, according to Middleton and Ellis, is the only spot along the whole American coast from Churchill upwards, which

* Ellis, p. 269. London Edit. 1748.

† Ibid, p. 149.

‡ It is also requisite that the channels should be buoyed for the guidance of the ships, as the sands shift; and when the season is over, these buoys are always taken up by a vessel kept for the purpose.

1824. Sept. affords tolerably good anchorage; but as the place in which their ships lay was a roadsted, we had no prospect of hanging on in it until the ice secured us. There is, however, an excellent harbour in the island, in which the vessels of the unfortunate Knight and Barlow were wrecked, and all hands perished by famine in 1719-22*, but its entrance is dangerous†, and according to Ellis, who appears to have surveyed it, there is a bar across its mouth on which at *spring* tides there are only thirteen feet‡; and as the Griper drew sixteen feet, it was of course closed to us.

With these difficulties before me, and anxious to do what was best for the service; considering that the company's ships were frequently as late as this period in leaving the factories, I decided on endeavouring to reach Hudson's Strait, and proceeding to England, well knowing that although our risk in again passing Southampton Island would be very great, yet it was no worse than searching for winter quarters, and Mansel Island being once passed, we should be in comparative safety. In order, however, to satisfy myself still farther in this

* Barrow's Voyages to the Polar Regions, p. 272.

† Ibid. p. 276.

‡ Ellis. Voyage of the Dobbs and California, p. 148.

measure, I addressed a letter to my officers, requesting their respective opinions on our situation, without stating my own: and their individual answers advised, "that in consequence of our loss of anchors, &c., we should return to England without delay." 1824. Sept.

I therefore bore up, after having informed all hands of my plans; and thus were all our present hopes of discovery and reputation completely overthrown; our past difficulties of no avail, and our only consolation, that to the latest moment every exertion had been made for the performance of the service on which we had been sent. Individually, I felt most painfully the situation in which I was placed, in a ship but ill adapted, in her present over-loaded state, to navigate in these or any other seas, and my only support was in the hope that the strictest investigation might be made into the conduct of myself and those under my command, and that the Lords of the Admiralty would again furnish me forth, and allow me an opportunity of shewing, that the failure of this expedition was not to be attributed to any want of zeal on my part, or of support from my most valuable officers and men.

1824. Sept. AFTER noon, on Wednesday, September 15th, 1824, with a sad heart, I bore up and steered w.b.N., by compass, which I believed to be about south, (true,) for there was no sun to assist us, although a "blink" over the distant snow-covered land astern, afforded a mark by which we steered for a few hours. At eight P.M., having run twenty-five miles, and not daring to trust to the compasses, I hove to, and our soundings, as we drifted, increased gradually to seventy fathoms, on the morning of the 16th, when the moon was seen at times, and by her we bore up and steered s.s.E. In the space of half an hour all three compasses took a sudden turn from west to east, and, as they continued steady, I was led to suppose they had resumed their errors as shewn on the 5th and 6th*, when we were not far from our present situation. By the sun at eight A.M. this was most accurately confirmed, but while running during the forenoon, the compasses again became unsteady. A light breeze springing up in the afternoon, from s.b.E. (true,) gave our head E.b.S. (true,) yet the three compasses agreed in shewing a variation of three points and a half easterly on this course.

Our run at noon having given us one hun-

* Vide Appendix.

dred and thirty-four miles, which was far greater than our dead reckoning, established the existence of a very strong current, and led me to suppose that the flood-tide from the northward in the Welcome, continues much longer than the ebb. 1824. Sept.

Small snow fell, but the weather continued moderate. The quiet of the past night in deep water, and constant fires for drying clothes, &c., shewed their united good effects upon our people on this day, for, with one or two exceptions, all were refreshed and well. Our larboard boat was hoisted in, and the carpenters repaired her broadside, which had been stove on the 13th, before dark. A moderate breeze continued to blow, as we supposed, from the southward. Our head all the afternoon was north-east, which by using the corrections of the 6th, would give a south-east course. We, however, had nothing to confirm this, and therefore kept two leads going all night, during which we continued to run, as no time was now to be lost in making southing.

During the first watch we steered north-east twelve miles, which, with our supposed deviation, would give east, or E.b.S. (true,) and at midnight tacked in eighty-six fathoms. The wind, which was still believed to be S.S.E.,

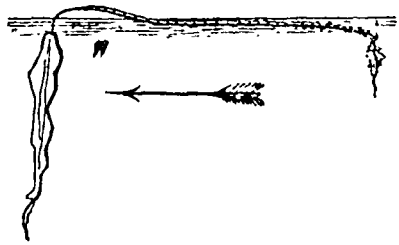
1824. Sept. remained light, and small snow fell occasionally. The compasses in going about, gave our head N.N.W., (supposed to be south-west, [true,]) on which course we made two miles, when at one A.M on the 17th, all the cards ran round, and would afterwards remain at no fixed point. I was therefore obliged to heave to, until we should see the moon, which at three A.M. appeared, her true bearing being then S.E.b.E.; and steering by her S.W.b.S., we now found that the wind was west. At four A.M. we had eighty-seven fathoms. I cannot but be aware that these compass and celestial bearings which are so often repeated, must fatigue many of my readers, and render the narrative of a very dull voyage doubly tedious, but I dwell on them particularly as being facts which so materially interested us at the moment, and by attention to which, a ship in such a situation as ours, could alone be navigated in safety.

Having ran from three to seven A.M., about eleven miles S.E.b.S, the water was observed to have changed to a very light colour, and our soundings had decreased to forty-three fathoms. From the mast-head I saw low land, distant and indistinctly to the eastward, and bearing from E.b.N. to E.b.S., and therefore hauled off to the southward by the sun's bear-

ing. There can be no doubt that the land now seen was an island, which I named after Mr. Tom, in whose watch it was first discovered, and that as our track from Cape Southampton to the Bay of God's Mercy on the 31st August, lay thirty miles to the eastward, we must have been actually passing within it at the time when our soundings decreased to nineteen fathoms, and it was most fortunate that on then shoaling the water we had not kept away to the westward, which must in that case have ran us directly upon it. 1824. Sept.

During the forenoon we passed a great quantity of tangle-weed, and some which was picked up had quantities of small bivalve shells attached to the blades and leaves. The stalk of one piece which we measured, was eighteen feet in length, and the leaf, although a portion had been torn from its point, twelve feet six inches, making a total of thirty feet six inches. It would appear that at this time the stream was setting to the westward, as all the blades were floating in that direction. Repeated observations had now enabled us to judge with tolerable precision, of the set of the tides, by the way in which the tangle-weed floated in the water; the broad flat blade acting on the

1824. Sept. same principle as the vane of a weather-cock, and being thus influenced.



Towards noon, light snow began falling, and continued for three or four hours, yet we obtained a meridian altitude and sights, and the weather was calm until three P.M., when a light breeze sprang up from N.N.E., but soon veered to N.N.W. The soundings at noon were eighty, but they gradually decreased until nine P.M. to forty fathoms, although we had steered south-west about eleven miles; at thirty minutes after nine we had forty-eight fathoms. We had hitherto kept south-west, in order to deepen the soundings, as, from the recent discovery of "Tom's Island" and the shoalness of the water while seventy miles from any known land, there was reason to fear we might meet with other low islands. We now kept s.s.w. until midnight, with the wind from the northward, but finding that we had not yet above forty-four fathoms, it was to be

feared that we were still on a bank, so hauling up west, under easy sail, we again deepened to fifty-eight fathoms. It is remarkable that our soundings should have continued so low while standing from the shore, but this may in some measure be accounted for, by our having ascertained beyond a doubt, that there was here a strong and constant easterly set*, which, as the ship had but little way, must have kept her nearly stationary. Hence it may be affirmed, that what has hitherto been called Southampton Island, is in fact a group of low, shoal, and extremely dangerous isles, between which, possibly through "Evans' Inlet," the strong current set from Sir Thos. Roe's Welcome into Hudson's Strait; a momentary glance, however, at the formation and position of the lands on the chart, will more fully explain this than I can do by description. 1824. Sept.

At four A.M. on the 18th, with the wind from the northward, we steered south-east by the moon, and had an excellent run. Our

* During an interval of dead calm, with the deep sea lead at the bottom in forty-five fathoms, the ship was found to drive due east above a knot an hour.

Vide also August 31, for an account of our setting in the evening towards a point of land near our present situation.

1824. Sept. noon position again gave a remarkable proof of the strength of the easterly set, as the latitudes by observation and dead reckoning were the same, but the observed longitude was twenty-eight miles to the eastward of that by account, thence shewing a constant set of above one knot an hour.

In the afternoon, the magnetic error of the compasses was found to have decreased very considerably*. Small snow fell occasionally throughout the day, and one very fresh squall obliged us suddenly to shorten sail; but the weather quickly moderating, it was set again. Although the clouds, during the past week, had began to assume their hard wintry forms and colours, the temperature continued comparatively moderate. Very little weed was seen on this day, a happy proof of our being clear of the banks which had so long perplexed and alarmed us; and the sea had re-assumed its darker hue, to which we had so long been unaccustomed.

Running till ten P.M., we lay to for the night, as I had reason to suppose we were to the southward of Cape Southampton, and was more particularly confirmed in this opinion from the

* See Appendix.

compasses having all again become restless. This agitation having frequently been observed on other nights, between the hours of nine and eleven, had always been the cause of great anxiety to me, while endeavouring to steer a course after dark, unless the moon or stars were clearly visible; and it is well worthy of consideration, whether this wildness of motion in the compasses is at all caused by the *absence* of the sun, or is in any way occasioned by the *presence* of the Aurora, which phenomenon was rarely seen earlier than nine P.M., and the time when it was most vivid was generally at about ten. At this hour, on one occasion, Mr. Kendall observed, that during the prevalence of an unusually brilliant Aurora, the larboard binnacle compass would remain stationary at no particular point, while the starboard one, by a bearing of the Pole-star, had lessened its accustomed error two points. By a bearing of the sun on the following morning, it was found to have re-assumed its original position. 1824. Sept.

At daylight on the 19th all sail was made to the north-east, (compass) expecting that the magnetic error of the preceding day would still be applicable, and that we should make an east course; but a glimpse of the sun at eight A.M., saved us from much danger, by shewing

1824. Sept. that north-east, (compass) was in fact north-east true, and that there was now no magnetic error on that bearing. At nine A.M., therefore, we were constrained to heave to, absolutely from not knowing how to steer, and in the forenoon the opportune appearance of the sun enabled me to discover new errors. From this circumstance, I began to entertain hopes that the compasses were gradually recovering themselves, but as the sun was very soon hidden again, we ran forward in doubt, as, should the compasses so far regain their polarity as only to require correction for the regular variations, without our being aware of it at the moment, we should carry the ship directly for the shoals, while imagining that we were running some points clear of them. This occasioned me considerable anxiety, which would have been not a little increased by the time we were losing, and the water we were expending, had not Mr. Leyson (Assistant-surgeon,) with his usual zeal and quickness, contrived an ingenious and simple method of distilling water from the coppers, which ensured us, while the weather was moderate, a quart a man per diem. I was of course aware that we had a full navigable fortnight before us, yet could not but feel anxious about replenishing water, as, in our

present helpless state, I dared not approach the Southampton shore for a supply, and it was very doubtful when we might reach Hudson's Strait, and, even in doing so, if we should find any ice, from which we might fill our tanks, still remaining in it. 1824. Sept.

Had it not been for Mr. Leyson's contrivance, I was about to reduce our daily allowance of water from a quart to a pint, which would have been far too little for our support. It may be well imagined how tantalizing it must have been for us to know that water could have easily been procured, had we been enabled to anchor, and also to reflect, that, in a country whose seas are almost constantly filled with ice, we should, when we most wished for it, be unblessed with the sight of the smallest morsel. The prospect of having a homeward passage of some thousand miles before us, with only the uncertain supply from distillation for our support, was not the most enlivening, and I, in consequence, stopped all salt provision, and only issued such as was not likely to induce thirst.

The wind freshened slowly from the southward as we lay to during the night, which was very dark; and on the morning of the 20th, we were under main-topsail and trysails. Snow

1824. Sept. began falling, and a heavy sea soon rose. Immediately before the gale set in, the barometer rose to 30.312, which was higher than we had hitherto seen it, but it fell again as quickly to 28.021, at which it continued until the weather changed. The wind, as we imagined, veered round during the day to south-east, whence it blew with great violence. Having now been two days without obtaining observations, or sufficient sights of the sun to ascertain if our compasses had changed their errors, there was reason to apprehend that Southampton was now a lee-shore to us, but as we had from sixty to eighty fathoms, it was probably still distant.

The snow fell so thickly towards evening, that our people obtained a quantity of water, in addition to their daily quart.

I was now much concerned to observe, that in each succeeding gale, the ship's decks became more leaky, and that the shocks she had received in the "Bay of God's Mercy," with the severe strains experienced while at anchor on the 12th and 13th, had loosened her upper-works very considerably. The heavy seas which we shipped continually all this day and night, kept our lower-deck and cabins constantly flooded, for the opening of the seams allowed of the water finding its way to the cork-lining,

from whence it dropped for many hours after we had ceased to take the seas over all. The lower-deck had not now been dry for three weeks, and was in a most unwholesome state; but we were quite unable to remedy this, for the hatches were of necessity always battened down, and when that was the case the galley-fire would not draw. Silvester's stove might, indeed, have been of some use, but we could not try its effect, as the square of the main-hatchway, the space in front of the stove, and even its warm air-chamber, were still crowded with small stores, which we had not room to stow elsewhere. With all these discomforts, nothing could equal the patience and good conduct of my men, who bore all their recent reverses with admirable fortitude. 1824. Sept.

The gale continued all night, but a most alarming sea, or "race," arose at midnight, caused, in all probability, by the conflux of the tides of the Welcome and that from Hudson's Strait, and which, on the 29th August, had been experienced while the ship was in her present position, in an equally dangerous degree. The sea had no decided set, but pitched "up and down," notwithstanding the violence of the wind, and it frequently happened that we shipped four seas at the same time, one

1824. Sept. over each bow and quarter, without the power of avoiding them; so that our decks were completely flooded.

The morning of the 21st was not more favourable than the past night had been, but we were so fortunate as to obtain observations. The wind moderated from N.N.E. towards night, and we set close-reefed topsails and courses. During the night the sky cleared, and observations were obtained for magnetic errors. The wind became variable.

On the morning of the 22d I was much concerned at having some rheumatic cases reported to me, and at learning that the officer's cabins absolutely leaked in streams. That of the First Lieutenant was quite flooded, and he removed into mine until we should have better weather. Running E.S.E. until noon, I then shaped a course for the strait between Mansel Island and Southampton, N.E.b.E., the compasses now shewing that course to require no correction. The wind continued fresh from the south-west all night, the ship averaging five knots, and at two A.M. on the 23d we obtained soundings in ninety fathoms; at three in seventy-five, and at four in forty-nine, which must have been on the tail of that extensive shoal running out from "Carey's Swan's-

Nest," and at thirty past six the land was seen from the mast-head between it and Cape Southampton. The weather during the forenoon gave us reason to hope that it would continue equally favourable, and that the present wind would prove an exception to what we had always experienced during the last three weeks, which was, that every breeze, on having once become steady, invariably ended in a heavy gale. At ten we sounded in fifty-three fathoms. It is remarkable that the sea is here of a different colour from that on the shoals off the west coast of Southampton, as it there had a whitish appearance, even at the depth of fifty or sixty fathoms; while in this part it was as dark as the Atlantic, although the coast which it washed, and the nature of the bottom, were precisely the same. At noon our observations gave us twenty-eight miles N.N.E. of the dead reckoning, shewing the effect of a strong current from the southward, in consequence of the prevailing wind, and thus giving us great hopes of passing Mansel Island by nightfall. Standing E.N.E. forty-five miles, we did not make it at eight P.M., although it is laid down as only that distance from Cape Pembroke. We therefore stood on all night east (true), but allowing for lee-way, E.N.E., and had no bot- 1824. Sept.

1824. Sept. tom by frequent soundings at one hundred fathoms. The wind freshened to a gale in the first watch, and we again experienced the same extraordinary and alarming sea, or "race," as on the 29th August and 20th of this month, and the ship lay like a vessel water-logged, and took it over on all sides. At ten P.M. it filled and washed away our stern-boat, with some boats' arm and provision, and instrument-chests which were stowed in her, and very frequently fell in a heavy wave over the taffril. We kept, however, a little head-way on the ship under the main-topsail and trysail, and on the morning of the 24th the wind moderated so as to allow of our making more sail. We gained a little easting, and at noon obtained meridional altitude.

At three P.M. land was reported ahead, and to our most agreeable surprise we found it, by a set of sights which had at first been rejected as taken too near noon, to be Cape Wolstenholm. In an hour or two some remarkable points which had been set when we first passed the Cape, were clearly seen, and our situation most accurately ascertained, shewing, that in addition to our excellent run (having averaged five knots for twenty-four hours, a rate at which the Griper had never before arrived on this

voyage,) a current had set us thirty miles eastward of our reckoning, which shews its rate at about a mile and a half an hour. 1824. Sept.

This having been the case on the preceding day's run, renders it evident, that the long fetch from the bottom of Hudson's Bay, during the prevalence of a southerly wind, must bring a great pressure of water on the channels east and west of Mansel Island, overpowering all tides, and extending even beyond the narrows of the passage. This may account for the dangerous "races" we had twice passed through off Cape Southampton, as well as that of which I have spoken above, caused by the opposition of the tide of flood to this great southern rush of water. During the night there was a continued calm, with heavy rain, yet we found ourselves carried in the first watch to about ten miles to the eastward of Cape Wolstenholm.

Towards dawn of the 25th, a light breeze sprang up from the eastward, and as the day broke, we found ourselves about ten miles from the opening between Nottingham and Salisbury Islands, off which a close but narrow stream of ice was lying. As we now had but a few days' water remaining, I gladly stood for the ice, and heaving to at eight A.M., sent the

1821. Sept. boats for a supply. They, however, found all the pools frozen, but returned with sufficient blocks of ice to thaw into three tons of water, which was still too small a quantity for our homeward passage, but which circumstances prevented our increasing. While lying off the stream, thirteen kayaks most unexpectedly came off to us, for it had always been understood that these islands were uninhabited, and from their high precipitous appearance, I should not have fancied them suited to the Esquimaux, who generally establish themselves on low ground, and near shoal water.

I could not but compare the boisterous, noisy, fat fellows who were alongside, in excellent canoes, with well-furnished iron-headed weapons, and handsome clothing, with the poor people we had seen at Southampton Island; the latter with their spear-heads, arrows, and even knives of chipped flint, without canoes, wood, or iron, and with their tents and clothes full of holes; yet of mild manners, quiet in speech, and as grateful for kindness, as they were anxious to return it: while those now alongside, had perhaps scarcely a virtue left, owing to the roguery they had learnt from their annual visits to the Hudson's Bay ships. An air of saucy independence, a most clamorous

KŌŌ-I-SHEET

KOO-I-LĪT-TIUK

or John Bull.

ILIG-LIUK

Singing.

ĒE-WE-EAT

A Conjuror.

demand for presents, and several attempts at theft, some of which were successful, were their leading characteristics. Yet I saw not why I should constitute myself the censor of these poor savages, and our barter was accordingly conducted in such a manner, as to enrich them very considerably: 1824. Sept.

Nothing new was seen at this visit, if I except a most ingenious piece of carving from the grinder of a walrus; this was a very spirited little figure of a dog lying down and gnawing a bone; and although not much above an inch in length, the animal's general expression was admirable. I should, however, mention that we also procured a few little ivory bears of the same description, and far better executed than any we had purchased before. One man brought off two fresh salmon trout; but no other provisions were seen.

At eleven A.M. we suddenly observed a very agitated ripple of tide setting towards us, and although the wind was light, and the sea as smooth as a mirror, it ran in such rapid eddies, as to throw up little white-topped waves. It separated the stream of ice which lay across the mouth of the channel between the islands, in an incredibly short space of time; but a light breeze enabled us to run

1824. Sept. through the slackest part of the eddy, and remain in still water, while the ice was swept at the rate of at least three knots to the eastward, thus entirely depriving us of an addition to our first cargo, of which the boats were not yet cleared.

Good observations and meridian altitudes, with several angles, assured us of the precise situation of the islands, which was very satisfactory, as their position is incorrectly marked in the charts.

Mr. Bell, master of the Camden, Hudson's Bay ship, had informed me at the Admiralty, that the Nottingham Island of Captain Parry was incorrectly laid down, and that this island was actually to the southward of Salisbury, which I now found to be exactly as he had said; but I have no doubt that the small portion of land which we mistook for Nottingham in the last voyage, is in fact one of Baffin's "Mill Islands" the position of which has hitherto been so imperfectly known, and it will therefore only now be requisite to change its name. Our cross bearings gave the southern coast of Salisbury, so as to correspond most exactly with the northern part as laid down by Captain Parry, and the form and size of this island is therefore determined with the

greatest certainty. We also at this time completed the bearings from Cape Wolstenholm; and the strait between it and the two islands, is about thirty-five miles in breadth. 1824. Sept.

The natives left us at noon while we were occupied in clearing the boats of ice; an operation they did not quite comprehend, particularly after one of our men had seriously informed them, in their own language, that we intended eating it. Variable and light airs prevented my making so good an offing from the islands as I could have wished, particularly as the sky was very threatening, and a precipitous coast, with such a current as we had seen in the morning, were by no means agreeable neighbours. During the night, which was very dark and hazy, the light air which blew took no effect on our sails, owing to a heavy short swell, which suddenly arose without any apparent cause, and in which the ship, according to custom, pitched bows under, and lost all steerage way. This was much increased by hearing, near midnight, the approach of the foaming tide we had seen at the same hour in the forenoon; and it now brought a most agitated surf with it, in which we continued to be whirled about for above four hours, the sea sounding all round us as if it beat against a

1824. Sept. long line of rocks. This, as we were quite ignorant as to where the wild eddy was carrying us, gave me great anxiety, although we had no bottom with one hundred and fifty fathoms, until day-light of the 26th, by which time the sea had become smooth, and not an eddy was to be seen. We now, by a distant bearing of Cape Wolstenholm, ascertained that we had been swept considerably to the south-eastward of Salisbury Island, although it was hidden from us by a fog. The eddy must therefore have come from the north-westward, between the islands, and have carried us until it joined that which branched round the east end of Salisbury; and it must have been the junction of these two impetuous currents which caused the noise and turbulent sea I have spoken of.

The forenoon of the 26th was foggy, but when the sky cleared, we obtained observations for the magnetic errors of the compasses. In the evening a light breeze, from the southward, enabled us to steer a course for Charles Island; but a short sea in which we were quite helpless, allowed of our making but little progress in the night.

The morning of the 27th was fine, dry, and clear, with the wind from the southward. No

land was visible, and the whole of the horizon was fantastically fringed by low fog-banks. Three small bergs were seen on this day, and on one was a large flock of kittiwake gulls, several of which were shot by the officers. We had now ascertained by repeated and satisfactory observations of the sun and pole star, that all easterly errors of the compass had ceased, and that whatever corrections were requisite (and they were still very irregular) were westerly*. 1824. Sept.

The night was fine, and the wind still light. By a bearing of the pole star, the ship's head being west, the magnetic error was nine points westerly. The morning of the 28th was extremely foggy, with calm and occasional flaws of southerly wind, until the evening, when a light breeze arose from north-west†. Before the breeze reached us, a noise as of a beach

* See Appendix.

† It is worthy of remark that we had never before known the southerly winds in this country to continue above two or three days, and when the breeze was strong from that quarter, rarely above twelve hours; yet this last southerly wind commenced on the 22nd, blew very hard, and raised a heavy sea for three days, and then fell; but without changing its direction, continued light up to this day, the eighth from which it first rose.

1824. Sept. surf was heard, and the fog being very heavy, the boats were lowered to tow our head off the supposed shore, but the sky was suddenly cleared by the breeze, and no land was seen in any direction. A narrow and agitated eddy was now observed to whirl quickly past the ship, and we then found that the noise had proceeded from its motion. Whence this could have come, so as to retain such velocity at so great a distance from the land, I cannot conceive. The breeze increased slowly from the north-eastward, but as we were uncertain where we had drifted in the recent calm, I lay to for the night, and at daylight on the 29th made sail east to discover the land. At noon we obtained observations, and in the evening made the coast, which we neared sufficiently before dark, to discern to be the North Bluff, from whence at eight P.M. we took a departure, and steered south-east. Along the shore a great number of very large bergs were observed, apparently aground, as if driven to the northern land by the recent southerly winds.

We sailed past several during the night, which was exceedingly bright and fine, the stars shining with uncommon brilliancy, and the Aurora being unusually splendid.

The wind had fallen considerably at daylight, on the 30th, and land was seen indistinctly at about twenty-five miles to the northward. A thick fog continued with but little intermission all day, and when it cleared in the evening, the wind settled from the south-east, and we obtained corrections for the compasses. In the course of the day, we had passed several bergs, and one small piece which we picked up yielded us a valuable ton of water. The breeze continued in our favour all the 1st of October, during which we had an indistinct view of the land. On the morning of the 2nd, land was seen distant and indistinctly to the north-eastward. This must have been somewhere near Hatton's Headland; but as it was of the utmost importance that we should clear the strait while the breeze was favourable, I did not approach it. While running to the south-east with rather a heavy sea, we observed several flocks of rotges, which had been very numerous all the day, to fly directly against the steep sides of a wave, and bury themselves headlong in a moment; a manner of diving I had never seen adopted by any other northern birds. In the evening we made and passed the northernmost of the bold precipitous group of Button's Islands. The night was

1824. October.

1824. October. fine, and we ran into the Atlantic with a fair and moderate breeze. Never have I witnessed a happier set of countenances than were on our deck this night. To have regained once more an open ocean, in a ship in which we had so often been in danger, was of itself sufficient to rejoice at; but when we reflected, that in two particular instances we had been left without the slightest probability of again seeing our country; that, when all hope had left us, we had been mercifully preserved, and that now, without the power of beating off a lee-shore, or an anchor to save us, we had run through nine hundred miles of a dangerous navigation, and arrived in safety at the ocean, I may say that our sensations were indescribable. For the first time since the 28th of August, a period of five weeks, I enjoyed a night of uninterrupted repose.

The 3d was a lovely day, and we most fortunately met with a piece of ice, from which, in a few hours, a supply of blocks, sufficient to fill all our tanks, was obtained. Had it not been for this, we should inevitably have been very seriously distressed on our homeward passage. The weather during the night was remarkably mild and fine, and the sea perfectly quiet, so that (perhaps from comparison in a great mea-

sure) it was agreed that we had never seen two such delightful days as the past, since leaving England. And now the homeward passage appeared of easy accomplishment, and plans were arranged as to what we should do on our arrival in England at the expiration of three weeks; a fair period to allow for our crossing the Atlantic, as north-westerly winds have always been found to prevail at this season of the year. We were, however, fated to meet with still farther inconveniences, and to experience another convincing proof, that the order of the seasons and winds had been strangely changed during this autumn. 1824. October.

The weather was fine until the evening of the 4th, when a heavy gale set in from the southward, and a long Atlantic swell quickly arose. There was not the slightest abatement of the gale for many days, and the horizon was always obscured, so that we remained in ignorance as to whether any pack or berg was lying to leeward of us, and our suspense day and night was very painful, for to see ice in such weather, was only a prelude to being wrecked upon it.

On the 12th a ship hove in sight and bore down to us; she proved, on hailing, to be the Phœnix whaler, of Whitby, and informed us

1824. October. that she was very much in want of bread. I promised to lend some, but the sea and wind precluded all possibility of her lowering a boat, and she remained with us all night in hopes that the morning of the 13th would prove more favourable. There was, however, no improvement in the weather, and she veered a cask astern by a whale line, which we succeeded in picking up. We filled this and two of our own with bread, and in one of them our letters for England were stowed. The Phœnix then hauled them on board, and parted from us on the opposite tack. Soon after dark, a large brig passed close under our stern, but the heavy gale prevented our mutual hails being heard.

There was not the slightest diminution in the force or duration of the wind until the 16th, when having continued twelve days since its commencement from the southward, it slowly moderated, and nothing could be more welcome to us, for our hatches had been battened down for twelve days, and yet the lower deck was entirely flooded during the whole time by the constant leakage from above. This was not all, for we had several things washed away from the chains, one boat stove, and the fore-topmast shewed

itself badly sprung. With these troubles, the worst of all was the apprehension we entertained on two separate days, for the safety of the ship, as she took repeated and heavy seas as often over the taffrel as the bow. Our people felt severely their close confinement below, owing to the unwholesome air which they were obliged to breathe, and our sick list in consequence contained daily from four to six names. 1824. October.

The wind continued variable all the 17th, with a great swell from the southward. On the 18th, at night, it freshened from north-east, and we had a good run.

On the morning of the 19th a strange ship, which we had seen on the preceding evening, joined us, and the master, Mr. Valentine, came on board: she was the Achilles, of Dundee, and had but two fish.

Mr. Valentine informed me that he had been exposed, for nearly a month past, to a continuance of the worst weather he had seen in thirty-four years' experience, in these seas, and that the past season had been the most severe he had ever known. Many ships had not killed a single fish, and the Phœnix, which had only fifteen, was about the fullest of any. The ice had been shifted from its usual position

1824. October. by a continuance of north-east and easterly winds, and was all on the "West land." This fully accounts for our having met with such great and unexpected impediments in Hudson's Strait, into which it must have poured as into a tunnel. He informed me also, that Captain Parry had been seen some time in August, in about 73°, close beset, but could give me no other information about him, except that he had heard all were well. From Mr. Valentine I learnt that the ship Dundee was in the greatest distress for provisions, from having, like the many other unsuccessful ships, remained out long beyond her time; I, therefore, kept a good look out, in order to relieve her in case we met. By the Achilles I sent duplicate despatches. The Henrietta, of Leith, passed, and "broomed" two fish only.

On the 21st we were surprised by seeing a small ice-berg so far out of the usual track at this late season. A ship being discovered to leeward, I made signals to her at night, hoping she might be the Dundee. She joined on the morning of the 22d, and proved to be the North Pole, of Leith, with only seven fish. The mate came on board, and gave as sad an account of the past season as that which I

had received from Mr. Valentine. He, however, gave me a better report of Captain Parry, and that he was seen to the westward of the ice at the end of July. The mate promised to wait two hours for our letters; but the moment he got on board, the North Pole went in stays, and stood off from us on the other tack; we could not come up with her, and she soon ran us out of sight. 1824. October.

A heavy E.N.E. gale blew all the 23d, and the sea, which washed over all, stove in our hammock-boards on the bow and quarter, and flooded the lower deck. The weather fell to a dead calm on the 24th, and as the sea continued as high as ever, we pitched bow and taffril under; but we now knew from experience, that the seas we took in aft could not injure us, otherwise than by flooding the decks, for our ports were sufficient to discharge it. During this time two barks were seen to the eastward, apparently in company, and under low sail, and many of us were of opinion that they resembled the Hecla and Fury. At two P.M. a sudden and most violent squall came down from the E.N.E., and brought us in a moment under the trysails. It continued undiminished until the evening of the 25th, when it moderated, and the sky

1824. Novemb. cleared, but a very high sea continued running. A stranger was seen in the north-east, but too distant for us to ascertain what she was.

The wind rose from the north-west on the 26th, and we made great progress, for it continued until the 28th, when, after a short interval of calm, it shifted freshly to the south-west, from whence it continued unchanged.

On the 30th, with our wind as fair as we could wish, our damaged fore-topmast went in two places. We soon cleared the wreck, and had every sail set again. The south-west breeze continued until the 2d of November, when it changed to north-west, which was equally favourable. A strange brig, under English colours, passed us.

On the 4th the wind again veered round to the south-west, and continued so all the 5th and 6th, when it came rather more to the westward. It continued from the west-south-west all the 7th, on the afternoon of which day we struck soundings in seventy fathoms, fine sand. The wind shifted feebly round to north-west, and on the 8th, at three P.M., we made the Land's End, N.½E. At five P.M. the Lizard lights were seen, north, twenty miles. The favourable breeze continuing, we had an excellent run all night.

And here let me, in justice to their respective makers*, give my testimony in favour of our chronometers, which made the land to a mile, after having undergone many most severe shocks, and much exposure, for above five months. When we struck so heavily on the 1st of September, they were badly shaken, and in any rough weather their cots would frequently strike the beams. They had been carried in the pocket, and put in the boats in the hurry of preparing to quit the ship on the above day, and yet continued their rates with so small a variation that it does not deserve mention. 1824. Novemb.

On the 9th, with a strong west-south-west wind, we ran past the Start and Berry Head, and passing the Portland lights at night, hove to off St. Alban's Head until morning of the 10th; when, making sail, we procured a pilot, and, at ten, passed the Needles. In our distressed state, without anchors, I determined on running into Portsmouth Harbour, as the tide would serve until two P.M., and the wind was so fresh, that had we lost the flood, we could not have remained under sail all night in safety at Spithead. Accordingly,

* Messrs. Parkinson and Frodsham, Barwise, and Morris.

1824. Novemb. after having shewn our number, and signalized that we had lost all our anchors and cables, we ran into the harbour in a heavy squall, and were soon secured to a three-decker's moorings. Our people were, many of them, much exhausted by their constant exposure to the wash of the sea, and three were immediately sent to the hospital. They soon, however, recovered, and the Griper was paid off on the 13th of December.

Thus ends the journal of our unsuccessful expedition. Before I take leave of my readers, I hope I may be allowed to make a few observations respecting my shipmates, seamen as well as officers; whose conduct on all occasions was such as to entitle them to the warmest praise I can bestow. I may with truth assert, that there never was a happier little community than that assembled on board the Griper. Each succeeding day, and each escape from difficulties seemed to bind us more strongly together; and I am proud to say, that during the whole of our voyage, neither punishment, complaint, nor even a dispute of any kind, occurred amongst us.

APPENDIX.

APPENDIX.

THE great interest which naturally attaches to compass observations, made in the focus of magnetic action, to which the Griper advanced in her recent voyage, renders it desirable that the results obtained should be properly analyzed, in order to ascertain whether the curious phenomena which the needle presented were such as to throw any new light upon the mysterious action of terrestrial magnetism; or whether they will serve in any way to confirm the theory of this action at present most generally admitted.

The first and most important question in all cases of this kind is, to determine the situation of the magnetic pole, if there really be such a pole; and if not, at least to ascertain the point respected as such, by a needle in any particular place. There are two ways in which this may be effected; the first is by producing any two magnetic meridians, till they intersect each other, which intersection will, of course, be the common pole of the two places; and the second is by means of the relation theoretically established between the dip and variation in any one given place, which latter, as being the most independent, is to be preferred when it can be had recourse to.

Such an example occurs in the journal on the 24th of August, in lat. 63° 26′ 51″ N., long. 80° 51′ 25″ W., when the variation was found to be 37° 30′ W., and dip 86° 32′.

The relation above alluded to between the dip, variation, and magnetic latitude, as first deduced from observation by Biot, and afterwards by deductions from the laws of iron bodies by Mr. Barlow, is this, that in every part of the world the tangent of the dip of the needle is equal to double the tangent of the magnetic latitude of the place of observation. That is, if we conceive meridians to proceed from one magnetic pole of the earth to the other, and an equator to be described bisecting all those meridians, from which the magnetic latitudes are reckoned; then the tangent of the dip is equal to double the tangent of the arc comprised between the magnetic equator and the place of observation; consequently, when the dip is given, the magnetic latitude and co-latitude become known, which latter is the distance of the place of observation from the magnetic pole. Having thus the distance of the pole, and the variation of the needle showing the direction, as referred to the terrestrial meridian of the place of observation, the exact situation of the pole itself becomes a matter of easy computation. Thus in Fig. 1, if PP′ represent the terrestrial poles, and π, π' the magnetic poles, EQ the terrestrial equator, and MQ the magnetic equator: then eZ will be the terrestrial latitude, and mZ the magnetic latitude of the place Z; and consequently πZ its magnetic co-latitude, which becomes known by means of the law above-mentioned. Again, πP will be the terrestrial co-latitude of the place of the magnetic pole, and the angle πPZ will be the difference of longitude between the two meridians EP, eP, or the difference of longitude between the magnetic pole and the place of observation.

In the present instance the observed dip is 86° 32′; now nat. tan. 86° 32′ is 16.507456, therefore ½ tan. 86° 52′ = 8.253728 = tan. 83° 6′ = arc mZ, or magnetic latitude of Seahorse Point; and, consequently, πZ, or the co-latitude, is 6° 54′; which is the distance of the place of observation, measured on the arc of a great circle, from the magnetic pole.

Now, then, in the spherical triangle πPZ there are given, the arc πZ = 6° 54′, the magnetic co-latitude; the arc PZ = 26° 33′, (rejecting the seconds,) the terrestrial co-latitude, and the angle πZP, = 37° 30′, the variation; to find the angle πPZ, or the difference of longitude between the two meridians, and πP, the co-latitude of the magnetic pole.

The actual solution of this problem gives the angle πPZ = 11° 32′, the difference of longitude, which added to the longitude of the place 80° 51′, gives 92° 32′ W., for the longitude of the magnetic pole reckoned from London; and the arc πP = 21° 27′, which deducted from 90° leaves 68° 33′ for the latitude of the pole. It is unfortunate that no other opportunity occurred during the voyage of making a similar shore observation; but it is, at the same time, highly satisfactory, that the resulting place of the pole, as deduced above, agrees within certain narrow limits with the places of the same as obtained from the observations made in the several voyages of Captains Ross and Parry, and with those made by Captain Franklin in his over-land journey. These all give for the place of the pole a latitude not differing greatly from 70°, and a longitude a little more or less than 100°; but still there is a certain discrepancy, which is more and more obvious as the latitude diminishes, and which shows that the more northerly and westerly the place of observation is, the greater is the deduced western

longitude of the pole, a result which seems to obtain equally, whether the variation is east or west, and which will, there is little doubt, ultimately furnish one of the best tests we can have for confirming the true theory of terrestrial magnetic action, if we should ever arrive at it, of which reasonable hopes may be entertained, seeing the great advances that have been made, within a few years, towards reducing magnetic phenomena to the dominion of analysis, and towards which the observations made in our several northern voyages have mainly contributed.

In order to show the degree of approximation furnished by the different observations alluded to above, we have given the following table of the several computed results.

Place of Observation.	Date	Terrestrial Latitude and Longitude.		Dip.	Variation.	Computed place of Magnetic Pole.		Name of Observer.
		Latitude.	Longitude.					
Davis' Strait	1820	64.00 N.	61.50 W.	83.43 N.	60.20 W.	67.37	94.26	Parry
Regent's Inlet	Ditto	72.45 N.	89.41 W.	88.26 N.	118.16 W.	71.10	98.16	Ditto
Baffin's Bay, on ice	Ditto	73.00 N.	61.30 W.	84.30 N.	82. 2 W.	71.13	97. 3	Ditto
Possession Bay	Ditto	73.31 N.	77.22 W.	86. 4 N.	108.46 W.	69.40	99.10	Ditto
Melville Island	Ditto	74.47 N.	110.48 W.	88.43 N.	127.47 E.	73.12	102.46	Ditto
		56.41 N.	109.51 W.	85. 7. N.	25. 2 E.	65.11	100. 5	Franklin
		58.42 N.	111.18 W.	85.23 N.	22.49 E.	64.47	102.14	Ditto
		62.17 N.	114. 9 W.	86.38 N.	33.36 E.	67.35	104.25	Ditto
Different Stations in North America.	1820 and 1822	64.15 N.	113. 2 W.	87.20 N.	36.54 E.	68.17	104.24	Ditto
		67.1 N.	116.27 W.	87.31 N.	44.11 E.	70.17	106.21	Ditto
		67.47 N.	115.36 W.	88. 5 N.	46.25 E.	69.51	107.31	Ditto
		67.10 N.	109.44 W.	88.58 N.	41.43 E.	68.58	105.54	Ditto
		68.18 N.	109.25 W.	89.31 N.	41.15 E.	68.50	107.33	Ditto
Hudson's Bay	1824	63.27 N.	80.51 W.	86.32 N.	37.30 W.	68.33	92.23	Lyon

Let us next inquire to what extent the directive intensity of the compass ought to be reduced in consequence of the increase of the dip, and whether this decrease is sufficient to account for the powerless state of the needles during the passage of the vessel across Hudson's Bay.

The theory of magnetism, to which we have already alluded, (See *Barlow's Essays on Magnetic Attraction*, Art. 206, second edition,) leads to this result, that the intensity of direction of a horizontal needle, is always proportionate to the co-sine of the magnetic latitude of the place, or to the sine of its distance from the magnetic pole; or, as referred to the dip, the horizontal intensity varies inversely, as $\sqrt{(3 + \sec.^2\delta)}$, δ being the dip. That is, the intensity at Seahorse Point was to the same at Green Hythe, as $\sqrt{(3 + \sec.^2 70)} : \sqrt{(3 + \sec.^2 86° 32')}$, that is, as 1 to 5 nearly.

It is impossible to investigate this law of the decreasing magnetic intensity of the horizontal needle, without employing abstruse mathematical processes, which might embarrass the general reader; but a simple view may be taken of the subject, which will assist him in comprehending that a very considerable reduction must take place as the dip increases. For example, let *ns* (Fig. 2,) represent a horizontal needle in London. It will be perceived that the force which draws it into its magnetic direction is exerted in the line of the dip, *viz.*, in the line P*n*, forming an angle of 70° with the horizon; and, therefore, by the most simple laws of mechanics, it follows that this force being resolved into the two forces NP, N*n*, the latter is the only part of the force which is effective in giving it direction: that is, the horizontal intensity is to the direct intensity in the line of the dip, as N*n* to P*n*, or as co-sine 70° to radius. In the same way, in the second part of the figure,

which represents the needle at Seahorse Point, the horizontal directive intensity will be to the direct intensity as Nn'' to Pn'', or as co-sine 86° 32′ to radius. If, therefore, the direct intensity were the sames in both cases, the horizontal intensities would be to each other as co-sine of 70° to the co-sine of 86° 32′. The intensities, however, are not quite the same, but vary inversely, as $\sqrt{(4-3\sin.^2\delta)}$, and which being properly introduced, gives the law above-stated; namely, that the horizontal intensity in the two places are as $\sqrt{(3+\sec.^2 70°)} : \sqrt{(3+\sec.^2 86° 32')}$, or as 1 to 5, a reduced force, which is amply sufficient to account for the general sluggishness of the needles as recorded in the journal.

But it appears that the needles were more inactive in one position of the vessel than in another; let us then examine whether this is a result which is consistent with our general theory.

On this point it must be remembered, that the upper parts of all iron bodies, in places of great dip, possess the same species of magnetism as the pole of the earth, towards which the dip is made. The needle on shipboard, therefore, is under the compound influence of the earth and of the iron of the vessel, and the compass being farther aft than the great body of the iron, and above it, will have its north end drawn towards the vessel's head. When, therefore, the head is to the southward, the magnetism of the ship will draw the north end to the southward, while the magnetism of the earth will draw it to the north; so that in this position of the ship, the two forces counteracting each other will destroy the effect of either, at least when they are equal; and in all cases the directive power of the needle will be only that due to the difference of the two forces. Let us, then, examine how nearly the magnetic power of the earth

and that of the ship approximated towards equality in this part of the voyage of the Griper.

We are fortunately furnished with the requisite data for this investigation, by the experiments on the local attraction of the vessel at Green Hythe, previous to the voyage, for from these it appears that the attraction of the vessel was such, (rejecting small fractions,) as to produce a deflection of the needle, with the ship's head at east or west, of about 8°. That is, the two forces, namely, that of the earth and ship, when at right angles to each other, were so related that their common resultant formed with one of those forces an angle of 8°, and with the other an angle of 82°; consequently, these two forces were to each other as sine of 8° to sine of 82°, or as radius to tan. 82°, or as 1 to 7 nearly; that is, the magnetic action of the Griper was to that of the earth before the vessel left the Thames as 1 to 7. But at Seahorse Point we have seen that the earth's magnetism was less effective on the horizontal needles than in the Thames, in the ratio of 1 to 5; so that calling the powers of the earth 7 in the latter place, it was only 1·4 at the former. But besides this reduction in the effective powers of the earth's magnetism, it is to be remembered that the magnetism of the vessel will be increased in the ratio of $\sqrt{(4-3\sin.^2 86° 32')}$ to $\sqrt{(4-3\sin.^2 70°)}$ *, or in about the ratio of 100 to 116, so that the ratio of the magnetic powers of the iron of the vessel and of the earth, were at this station to each other as 1×116 to 100×1.4: or as 116 to 140, or as 1 to 1.19, nearly, whereas at the commencement of the voyage they were to each other as 1 to 7.

Hence it appears that the power of the ship's magnetism

* Essay on Magnetic Attraction, Art. 206.

at Sea-horse Point, was only a very little less than that of the earth; and consequently when these forces were opposed to each other, as was the case with the ship's head south, the remaining intensity upon the needle, *viz.*, .19, was by no means sufficient to give it any direction, and hence its powerless state with the ship's head towards this quarter. But with the ship's head to the north, the magnetism of the earth and that of the vessel conspired together, and the needle was rendered active by their joint influence, although this activity was obviously useless for the purpose of navigation.

These deductions will perhaps be rendered more intelligible to some readers by means of the diagram (Fig. 3.) which represents the vessel swung round to the four principal quarters, North, South, East, and West, the letter *n* in the vessel indicating the point in the same which attracts the north end of the needle. Now, with the vessel's head east, at Green Hithe, the needle was drawn by the earth towards N′, and by the ship towards *n′*; and the angle which the needle assumed having been 8° from *o n′*, shows that the power emanating from N′ was to that proceeding from *n′* as *ab* to *bc*, or as sin. 82° to sin. 8°, or, as we have seen, as 7 to 1. But in Hudson's Bay the ratio of these two forces was, in consequence of the increase of the one and the decrease of the other, reduced to that of 1·19 to 1: that is, nearly to equality, and consequently now, with the ship's head to the true magnetic east or west, the needle ought to have stood nearly north-east and north-west; but in coming round to the southward, the action of the ship counteracting more and more the action of the earth, as it became more directly opposed to it, the needle would become more and more inactive, and incapable of taking up any decided line of direction. With the head towards the north the ship and earth

would conspire together to give activity to the needle, as above-stated.

Now, when the correcting plate was applied, the needle was then inactive, to whatever point the ship's head was directed, at least after the dip exceeded 86°½, although it had done all that was required of it before. The reason of this is also sufficiently obvious, for the plate counteracting the magnetic power of the vessel, the directive intensity of the needle in all positions was the same, and this, as we have seen, was alone insufficient to give it direction. In the preceding voyage of the Griper, under the command of Captain Clavering, the greatest observed dip was 81°½, and the plate was effective throughout. In the present case it was found efficient till the dip amounted to 86°½, but this appears to be its limit, for beyond this the intensity of direction was so small as to be incompetent to overpower the friction on the point.

It will be observed that all the above inferences are drawn from the single shore observation at Sea-horse Point, but as from these it appears the magnetic pole was then to the south-west, and distant less than 7°; and as the vessel afterwards continued to advance nearly 3° in a line bearing directly towards it, there can be no doubt the dip continued to increase, and that at the most northern and western part of the voyage the dip was at least 87½°, while the variation, if our preceding determinations are to be relied on, was reduced to almost nothing. Hence the reason, in the first place, of all the observed irregularities getting greater as the latitude increased; and secondly, in consequence of a probable decrease of at least three points westerly variation, these irregularities would appear more easterly than before, for as there was no means of estimating directions except by the true meridians, and the variation having been more than

three points westerly at Sea-Lorse Point, all westerly deviations would appear to be three points more than they actually were, and all easterly deviations three points less; but when in the more northern parts of the voyage, as the needle's direction then nearly agreed with the true meridian, the errors on both sides would be nearly equal to each other, and consequently the easterly errors would appear to increase, and the westerly to diminish, as was found to be the case.

Having thus taken a general view of the phenomena, which we ought *à priori* to have expected the needle to present, let us take the several remarks as noted in the Journal, and see how far they may be individually explained upon the principle above established.

(*a*) (*b*) (*c*) These remarks have been sufficiently illustrated, by showing the great reduction of the directive intensity.

(*d*) This remark was made by Captain Franklin, but it is obviously the necessary consequence of a change of position in an east and west line so near to the magnetic pole.

(*e*) It has been already shewn that, with the ship's head to the southward, the magnetism of the earth and ship were opposed to each other, and having been also nearly equal, the compass would necessarily be inactive. With the ship's head north, the needle was under the compound influence of the ship and earth, and was therefore more active, although not more useful. Gilbert's compass having been freed from the magnetic action of the vessel, and that of the earth having been insufficient to give it direction, it would necessarily stand in any position.

(*f*) This sudden change in the larboard compass was most likely the effect of accident; with so little directive force, the needle is of course easily displaced. The error with the

ship's head to the west is consistent with the preceding illustration, except that it appears to be rather too strong. The inactivity of the compasses with the head to the south has been explained above. The tendency of the north end of the needle to follow the ship's head in consequence of its great attraction, sufficiently explains the cause of the errors noted in the latter part of this remark.

(*g*) Here the compasses remained stationary till, by the head of the vessel opening more to the eastward, they yielded suddenly to the power of its attraction.

(*h*) The remark here, of the error increasing to the east or west, as the vessel's head was towards either of these quarters, is quite consistent with the preceding illustrations, which show that the north end of the needle had constantly a tendency to follow the head, although the magnetism of the earth had, of course, its effect in keeping the north point of the card between the ship's head and the north. The inactivity in the other semicircle has been already explained.

(*i*) This remark requires no particular explanation, being similar to all the preceding.

(*k*) It has been rendered probable by our preceding explanations, that the dip of the needle at this time was nearly 88°, and consequently the magnetism of the earth reduced from what it was at Sea-horse Point, in the ratio of cos. $86\frac{1}{2}$: cos. $87\frac{1}{2}$, or cos. 88° ; that is, in the ratio of 2 to 3. At this time, therefore, the magnetic power of the ship probably exceeded that of the earth, and hence the changes remarked in the deviation of the needle. Moreover the natural westerly errors, arising from the actual variations, had now nearly diminished to nothing, which would cause an apparent increase in the easterly errors.

(*l*) There can be no doubt of these phenomena being due to the electro-magnetic effect of the Aurora Borealis. In

the *Phil. Trans.* for 1823 it is shown that, by reducing the directive power of the needle by means of artificial magnets, the daily variation may be increased from about 12′ to several degrees, and the effect which was in this case only produced artifically, is, with such considerable dips, produced naturally, as has been already sufficiently explained. It will of course be seen that, notwithstanding the incapability of the needle to take up a determined direction, its actual magnetic strength was not diminished, and it was consequently liable to be disturbed from any external cause acting upon it. The recent science of electro-magnetism proves the great disturbing power of electric currents; and Mr. Dalton, many years back, observed the influence of the Aurora upon a magnetic needle, even in these latitudes, where its directive power is considerable. It is therefore by no means astonishing that, in latitudes where the Auroræ are stronger, and the directive power of the needle so much less, than in England, the disturbance of the needle from this cause should be so perceptible. The remark, that these phenomena and motions in the needle were not observed till a certain hour in the evening, although the sun had been set some hours, may be ultimately of importance in tracing out the connexion of these phenomena with each other, but at present it appears to be inexplicable.

The change of latitude, nearly 3°, is amply sufficient to account for the diminished error here noticed.

(*m*) It is obvious that, if the power of the vessel on the needle were equal to that of the earth, in the most northern part of the voyage, which has been shewn to be probable, and the variation having been nearly nothing at the same time, it would follow of course that, with the ship's head at east, the compass would show N.E., as here stated; but this error would diminish on the return to the south-

ward; at the same time it is difficult to account for N.E. by compass being N.E. true, as appears to have been the case on the 19th, because the longitude being still very nearly the same, there is no reason to apprehend an increase of actual westerly variation.

(*n*) The still farther advance to the southward, and the consequent diminution of dip and increase in the terrestrial intensity, is sufficiently seen in these observations, although, with the ship's head to the southward, the needle is still weak and indeterminate in its directive quality.

(*o*) (*p*) The vessel being now returning towards the station where the variation had been found to be $37\frac{1}{2}°$ W., but to the eastward of it there can be little doubt that the variation was from the 23d to the 25th, about $8\frac{1}{2}$ or 4 points west; taking the least, the local attraction on the 23d would be $3\frac{1}{2}$ points, with the head at east by compass, and $2\frac{1}{2}$ points on the 24th, with the head at N.E.; about 33° at N.E.b.E., and 36° at W.b.N. on the 25th. That is, by subtracting 7° 27′ from the variation in the one case, and in the other subtracting the variation from 75° 49′ W., which results are exactly such as we should have naturally anticipated.

(*q*) The irregularities in these deviations show that, with the ship's head to the southward, the compass had not yet recovered its proper action.

(*r*) These results indicate very clearly a variation of 4 points westerly, and a local attraction of 2 points at east and west.

(*s*) The mean of the two variations at east and west seems to indicate here a westerly variation, amounting to $5\frac{1}{2}$ points, and a local attraction of about one point and a half; that is, about double the attraction in England: both of which indications are supported by a high degree of probability.

Day.	Time of Observation.	Latitude.	Longitude.	Ship's Head by ⊕	Magnetic Bearing of Celestial Body.
	° ′ ″	° ′ ″	° ′ ″		° ′ ″
Aug. 8	Noon.	62 12 48 D.R.	69 23 18 D.R.		
15	Noon.	63 9 21 M.A.	71 59 39 C.		
22	Night.	Noon. 62 44 26 D. R.	Noon. 78 55 44 C.	North	Pole * N.N.E. by Gilbert.
24	Noon.	63 26 51 D.R.	80 51 26 C	on shore	S. 37 30 W.
26	11 30 P.M.	Noon. 62 46 33 M.A.	Noon. 81 41 13 C.	North	Pole * Ld. ⊕ N.N.E. Sd. ⊕ N.¾W. Walker... North.

True Bearing of the Celestial Body.	Amount of Magnetic Error.	REMARKS.
	° ′ ″	The "magnetic error" of our compasses now became very great and uncertain, for even Gilbert's excellent azimuth compass, to which Professor Barlow's "correction plate" was fitted, was so sluggish as to require constant tapping *. (*a*)
		Gilbert's, which had hitherto been fully corrected for local attraction, now began to shew as great a magnetic error as those in the binnacles, and the sluggishness of all the compasses was extreme, so that it was by tapping alone that any would move (*b*).
North	2 Points W.	Our binnacle compasses gave at the same time one N.b.E., the other N.$\frac{1}{2}$E., but there had always been half a point difference between them (*c*).
South	Variation 37 30 0 W.	On shore at Point Leyson, Southampton Island, dip of magnetic needle 86° 32′. It was at first a matter of surprise to me that the regular variation should have decreased so rapidly, but I find that Capt. Franklin made the same remark as he crossed Hudson's Bay, where it becomes easterly at York Fort, in 92° W. (*d*).
North	2 Points W. $\frac{1}{4}$ Points E. 0 0	Our compasses had now become quite useless with the head to the southward, and the north point of Gilbert's, with the plate, would stand wherever it was placed by the finger (*e*).

* See Notes.

Day.	Time of Observation.	Latitude.	Longitude.	Ship's Head by ⊕	Magnetic Bearing of Celestial Body.
		° ′ ″	° ′ ″		
Aug. 30		Noon 62 14 38 M.A.	Noon 84 29 54 C.	North N.W West.	By repeated Observations of the ⊙ and Pole ✱, in the 24 hours.
31	4 A.M.	Noon 62 39 00 M.A.	Noon 85 52 38 C.	North	Pole ✱ N.E.b.N.

True Bearing of the Celestial Body.	Amount of Magnetic Error.	REMARKS.
By repeated Observations of the ☉ and Pole ✱, in the 24 hours.	3 Points w. }s w.	In the forenoon watch our larboard ⊕, which had agreed with the two others in shewing magnetic error as noted in the column, suddenly pointed E.N.E. and no tapping or motion would keep it to any other point for two or three minutes, after which it as suddenly recovered its agreement with the others, and continued quite correct. We now, from repeated observations, ascertained that, with the head between N.W. and west, the magnetic error amounted to 8 pts. W., while, with the head due south, the compasses would not remain quiet, or assumed at times each a direction of its own, yet if shaken from this they never returned to the same position. Heaving to, on this night, I observed that, on changing the ship's head from N. (⊕), or N.W.b.N. (true), and rounding to PORT, all the compasses changed inversely to STARBOARD, as N.b.E., NE., to E.b.N., at which latter point the ship's head remained all night, although the wind, by an observation of the Pole ✱, was unchanged from S.W.; thus shewing, as her head was in fact W.N.W., a magnetic error *increasing* gradually as she came round from N. ⊕ (*f*.)
North	3 w.	At four A.M. on the 31st I kept away to starboard, and the compasses remained quite steady until we had fallen off about four points, when all flew round at the same moment; and when by the Pole ✱ our head was N.W.b.N., all again pointed north, most correctly, as they had done before (*g*).

Day.	Time of Observation.	Latitude.	Longitude.	Ship's Head by ⊕	Magnetic Bearing of Celestial Body.
		° ′ ″	° ′ ″		
Sept. 5		Noon 63 15 44 M.A.	Noon 89 3 30 C.	North N.½E. N.N.W. N.W. West N.N.E. N.E. East	By various Observations by ⊙ and Pole.
7		Noon 63 38 00 M.A.	Noon 88 25 45 C.	North	Pole ✱ North
9	A.M. 9.51	Noon 64 15 00 M.A.	Noon 87 43 36 C.	N.b.E.	⊙ S. 45 E.
11	Night.	65 20 00	86 14 30	N.E.b.N. N.b.W.	Pole ✱ East.

True Bearing of the Celestial Body.	Amount of Magnetic Error.	REMARKS.
	Points.	Between west and south, and between east and south, no results could be obtained, for the compasses would never remain stationary with the ship's head in these directions. From the accompanying observations it may be seen that the magnetic error increases progressively, to the east if *right* of north, but westerly if to its *left*; and as the greatest established error is eight points at east and west, these points may be considered the maxima. Why the other half of the compass is powerless admits of most interesting speculation! (*h*).
is N.b.W.	1 W.	
is North	½ W.	
is N.W.	2 W.	
is West	4 W.	
is South	8 W.	
is N.E.	2 E.	
is S.E.	8 E.	
is South	8 E.	
North	0	At twilight on the 7th I went on deck to keep the ship her course, and found her head on the starboard tack N.W.b.N. Her course being north (true), I would not trust to the ⊕ and keep a close luff, but *wore*, and, having by ⊕ shifted 29 points, came on the larboard tack to north ⊕ at which was no error (*i*).
S. 43 50 15	1 9 45 E.	
North.	0	N.B. Three days since, the magnetic error was five points on this bearing.
North.	8 W.	N.B. Three days since, on this bearing there was *no* error. (*k*)

Day.	Time of Observation.	Latitude.	Longitude.	Ship's Head by ⊕	Magnetic Bearing of Celestial Object.
Sept.		° ′ ″	° ″		
18	P.M. 2.30	62 18 00	87 12 12	E.bN.	⊙ S.b.E.

True Bearing of Celestial Object.	Amount of Magnetic Error.	REMARKS.
S.W.½S.	4½E	At ten P.M. I hove to in consequence of the compasses becoming greatly agitated. This had frequently been observed on other nights between the hours of nine and eleven, and had always been the cause of great anxiety to me, while endeavouring to steer a course after dark. It is well worthy of consideration whether this agitation of the compasses is at all to be attributed to the *absence* of the sun, or is in any way occasioned by the *presence* of the Aurora; which phenomenon was rarely seen earlier than nine P.M.; and its greatest brilliancy was generally at about ten, although the sun had then been set some hours.
		On one occasion, during the prevalence of an unusually brilliant Aurora, at ten P.M., Mr. Kendall observed that the larboard binnacle compass would not remain steady at any point, while the starboard one by a bearing of the Pole * had *decreased* its accustomed error two points, but on the following morning by a bearing of the sun, it was found to have reassumed them. N.B. Up to this period the error on this bearing had been eight points E. (*b*.)
		As our recent observations had given a magnetic error of four points on a north-east course, I expected on this morning that we were steering east (true,) but a momentary glimpse of the sun's bearing at eight A.M., convinced me that north-

Day.	Time of Observation.	Latitude.	Longitude.	Ship's Head by ⊕	Magnetic Bearing of Celestial Object.
Sept. 19	8 A.M. 11 15	° ′ ″ 62 00 00	° ′ ″ 87 00 00	N.E. East	⊙S.E.b.E. S.E,b.S.
Sept. 21	10 P.M.	61 24 8	86 44 00	East. E.N.E.	P. * N.N.W. ,, N.N.W.
22	At dawn. Noon.	But having run N.E. 20 miles, the error, even in that 60 50 7	86 00 7	N.E. N.E.b.E.	Pole * N.N.W. ⊙ South.
23		62 24 36	82 24 30	East.	By several ⊙ and
24		63 1 7	78 36 0	N.E.	

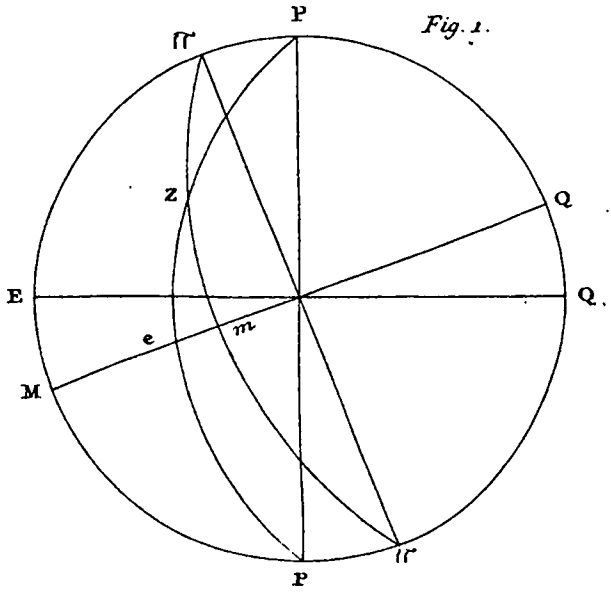
True Bearing of Celestial Object.	Amount of Magnetic Error.	REMARKS.
s.e.b.e. s.b.e.	0 2 e.	east ⊕, was in fact north-east (true,) and I shortened sail at nine A.M., absolutely from not knowing how to steer. As a farther proof of the decrease in the magnetic errors, see observation at 11 h. 15 m. east ⊕, having recently shewn eight points error. (*m*.)
North.	2 e.	
North. distance, became as below. South.	2 e. 0	By the sun on this day it was observed, that with our head east, e.b.s., or e.s.e., two, or at most three, points correction to the right or east, which for three days past we had been accustomed to allow, was quite sufficient; but if the ship fell off to the southward, say s.s.e., (true,) the compasses all ran round, and shewed her head s.w., or even west; a proof, when considered with other observations, that with the head even *one* point to the right or left of the true south, the compasses changed their errors from easterly to westerly, and *vice versâ*. Thus, by our observations, s.e. ⊕ and s.w. ⊕ give south, (true,) applying a certain deviation to the *right* for the first, and exactly the same proportion to the *left* for the second. (*n*).
observations of Pole *.	0	
	1 w.	Throughout this day we found that, with our head n.e., the compasses began to recover themselves. (*o*.)

Day.	Time of Observation.	Latitude.	Longitude.	Ship's Head by ⊕	Magnetic Bearing of Celestial Object.
Sept. 25	° ′ ″ 8 39 48 10 40 42	° ′ ″ 63 18 21	° ′ ″ 77 13 22	N.E.b.E. W.b.N.	° S. 22 30 E. S. 56 15 W.
26	Noon. Sunset.	63 00 00	77 00 00	S.S.E. West.	⊙ S.W.b.W. North.
27	9 55 A.M. Noon. 10 P.M.	63 24 40	73 49 57	E.b.S. East. N.W.b.N.N.	S. 28 7 E. S.b.W.½W. Pole * E.b.S.
30	Noon.	62 6 3	69 35 45	East. West. S.S.W. S.E.	⊙ S.S.W. W.S.W. W.S.W. S.W.
Oct. 1	Noon.	61 53 31	68 00 00	S.S.E.	⊙ S.W.
17		61 15 52	57 48 30	N.W.b.N. East. S.E. South. S.W. W.S.W. West.	These observations established by repeated bearings of the ⊙ and Pole *.

True Bearing of Celestial Object.	Amount of Magnetic Error.	REMARKS.
s. 29° 57′ 30″ E. s. 19 33 45 E.	7° 27′ W. 76 49 W.	Abreast of Nottingham and Salisbury Islands. (*p*.)
South. W.b.s.	5 W. 9 W.	We now found by repeated observations, that all easterly errors had ceased, and that whatever correction for the compasses (which were still very irregular) was requisite, was to the westward. (*q*.)
s. 84 12 30 E. South.	6 5 30 W. 1½ W. 9 W.	
South.	2 W. 6 W. 6 W. 4 W.	These observations were made while wearing. (*r*)
South.	4 W.	
Minimum. Maximum.	4½ W. 4 W. 3 W. 4 W. 5 W. 6 W. 7 W.	Mr. Valentine, master of the Achilles, whaler, with whom I communicated in Davis' Strait, informed me that he had been thirty-four voyages to this country, and that he knew it to be a general complaint of the masters of ships who were accustomed to fish in "the south-west," (that part of Davis's Strait near Reso-

Day.	Time of Observation.	Latitude.	Longitude.	Ship's Head by ⊕	Magnetic Bearing of Celestial Object.
		° ′ ″	° ′ ″		
Oct. 17					
20	Night.	59 21 00	52 5 00	South.	Pole *. N.E.
21	Night.	57 47 21	49 8 45	S.S.E. W.S.W.	Pole *. N.E.b.N. E.N.E.
22	Noon.	57 20 10	48 15 50	E.S.E.	⊙ S.S.W.

True Bearing of Celestial Object.	Amount of Magnetic Error.	REMARKS.
		lution Island,) that their latitude observed, while running to the westward, was always considerably to the southward of the latitude by account, but that he had for many years allowed six points, with the ship's head west, and found his reckoning generally correct. This is a confirmation of our observations here, (Davis' Strait,) and combines to account for the way in which we made the land on our outward passage, so that we were not affected by current alone, as we at first were inclined to suppose.
North.	4 w.	
North.	3 w. 6 w.	
South.	2 w.	



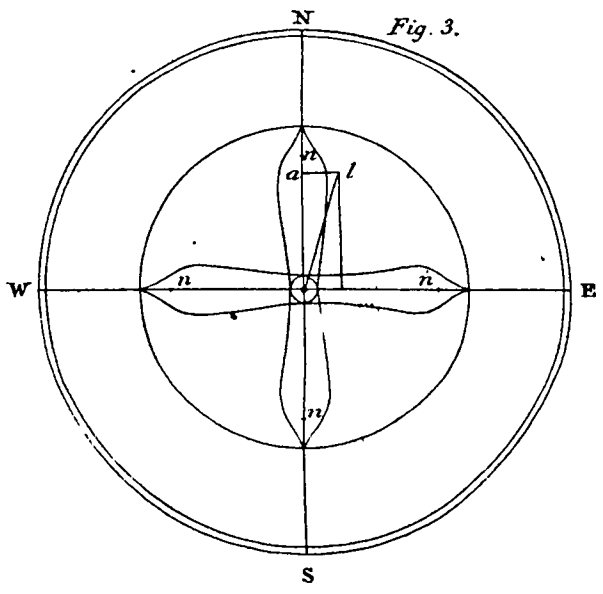
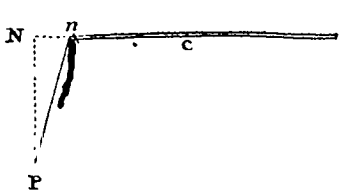
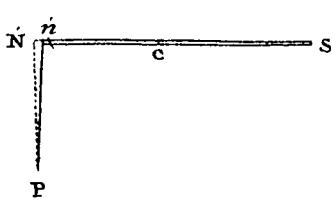


Fig. 2.





ABSTRACT

OF

THE DAYS' WORKS.

ABSTRACT of the DAYS' WORKS, kept on Board HIS MAJESTY'S Ship GRIPER, from the time of her leaving the Orkneys, to her return to England, from means of the Observations & CAPTAIN LYON and MR. KENDALL, Assistant-Surveyor and Admiralty Midshipman.

DATE.	Course.	Distance.	LATITUDE, N.			LONGITUDE, W.			Bearing, Distance, and Remarks.
			Mer. Altitude.	D. Alt.	Dead Reck.	Chronometer.	Lun.	Dead Reck.	
July 2	. .	Miles. .	° ′ ″ . .	° ′ ″ . .	° ′ ″ . .	° ′ ″ . .	.	° ′ ″ . .	At 6 A.M. on the 3d July, sailed through Hoy-mouth, and at noon the Stack Rock bore N. 25° 30′ E. 5 miles.
„ 4	N. 60 W.	98	. .	. .	57 30 00	. .	.	6 20 00	Land about Butt of Lewis, s. 10° E. 8 or 9 mls.
„ 5	N. 59 W.	44	57 38 47	. .	. .	. .	.	8 00 00	Flannen Islands s.b.E., 15 or 16 miles.
„ 6	N. 78 W.	71	58 46 25	. .	. .	10 18 26	.	. .	Rockall; s. 45° W., 94 miles.
„ 7	N. 78.45 W.	105	59 10 19	. .	. .	15 21 42	.	. .	Cape Farewell, N. 88 W. 925 miles.
„ 8	N. 35 W.	121	59 22 00	. .	. .	19 24 00	.	. .	„ „ N. 88 W., 799 miles.
9	S. 85 W.	81	59 14 00	. .	. .	23 37 00	.	. .	„ „ N. 87 W. 659 miles.
„ 10	N. 80 W.	57	. .	. .	59 24 00	. .	.	24 58 00	„ „ N. 87 W. 619 miles.
„ 11	S. 81 W.	57	59 15 29	. .	. .	. .	.	25 54 00	„ „ N. 87.21 W. 604 miles.
„ 12	N. 84 W.	.	58 8 00	. .	. .	27 57 58	.	. .	„ „ N. 81 W. 602 miles.
„ 13	N. 84 W.	57	57 53 54	. .	. .	27 25 40	.	. .	„ „ N. 79 W. 571 miles.
„ 14	N. 75 W.	31	58 3 42	. .	. .	28 49 40	.	. .	„ „ N. 79 W. 517 miles.

July 1	S. 67 W.	90	57 28 41	. .	. .	31 8 27	. .	Cape Farewell, N. 73 W. 459 miles.
„ 16	S. 54 W.	43	56 55 27	. .	. .	. .	32 20 27	Cape Chudleigh, N. 79 W. 1054 miles.
„ 17	N. 76 W.	63	. .	. .	57 10 42	. .	34 5 16	„ „ N. 79.36 W. 1013 miles.
„ 18	N. 63 W.	52	57 55 26	. .	. .	35 29 00	. .	„ „ N. 81.25 W. 925 miles.
„ 19	N. 76 W.	64	. .	. .	58 11 00	. .	37 33 00	„ „ N. 82 W. 868 miles.
„ 20	N. 83 W.	100	58 5 57	. .	. .	39 56 00	. .	„ „ N. 80 W. 791 miles.
„ 21	S. 87 W.	77	57 43 10	. .	. .	. .	. .	
„ 22	S. 28 W.	80	57 16 45	. .	. .	43 5 39	. .	Cape Farewell, N. 9 E. 142 miles.
„ 23	S. 18 W.	24	. .	. .	56 52 25	43 6 54	. .	„ „ N. 9 E. 161 miles.
„ 24	N. 55 W.	10	57 4 47	. .	. .	43 21 45	. .	Cape Chudleigh, N. 75 W. 696 miles.
„ 25	N. 68 W.	103	. .	. .	57 43 41	. .	46 21 33	„ „ N. 73 W. 594 miles.
„ 26	N. 51 W.	19	. .	. .	57 5 00	47 28 45	. .	„ „ N. 75.58 W. 569 miles.
„ 27	N. 48 W.	92	. .	. .	58 57 11	49 40 00	. .	„ „ N. 78.12 W. 475 miles.
„ 28	N. 69 W.	55	57 39 47	. .	. .	52 17 00	. .	„ „ N. 69 W. 433 miles.
„ 29	N. 61 W.	63	58 9 20	. .	. .	53 58 30	. .	„ „ N. 70.17 W. 370 miles.
„ 30	N. 66 W.	51	58 31 22	. .	. .	55 40 45	. .	„ „ N. 70 W. 310 miles.
„ 31	N. 58 W.	69	59 12 9	. .	. .	. .	57 55 00	„ „ N. 74.38 W. 238 miles.
Aug. 1	N. 79 W.	105	. .	. .	59 32 15	. .	61 21 00	„ „ N. 71 W. 129 miles.—7 P.M. saw the Labrador coast.

DATE.	Course.	Distance.	LATITUDE. Mer. Altitude.	D. Alt.	D. Reck.	LONGITUDE, W. Chronometer.	Lun.	Dead Reck.	Bearings, Distance, and Remarks.
Aug. 2	N. 75 W.	Miles. 51	° ′ ″ 59 24 38	. .	° ′ ″ . .	° ′ ″ 62 40 9	.	° ′ ″ . .	
„ 3	N. 32 W.	50	. .	. .	60 7 12	. .	.	63 32 56	Extreme of the land from N.b.E. to W.S.W. true.
„ 4			61 23 40	. .	. .	64 2 18	.	. .	Cape Chudleigh, S. 18 W. 14 miles.
„ 5			. .	. .	. .	. .	.	. .	„ Resolution, N. 42 W. 21 miles.
„ 6			. .	. .	. .	. .	.	. .	Working along Resolution Island.
„ 7			61 41 25	. .	. .	66 23 0	.	. .	Resolution Island, from S. 74 E. to N. 48 E.
„ 8			. .	. .	. .	. .		. .	East Bluff N. lower Savage Islands, Ir. N.b.E. to E.S.E.
„ 9			. .	. .	. .	. .		. .	Running along the north shore.
„ 10			. .	. .	. .	. .	.	. .	Running along the north shore.
„ 11	Going up Hudson's Strait.		62 16 28	. .	. .	69 42 00	.	. .	Land on the east side of North Bay, N.E.
„ 12			. .	. .	. .	. .	.	. .	Loom of the land in North Bay, north.
„ 13			63 16 00	. .	. .	. .	.	. .	North Bluff, N.b.N.E. 8 or 9 miles.
„ 14	N. 69 W.	21	63 17 24	. .	. .	72 12 00	.	. .	Remarkable bluff, E.N.E., North Bluff, E.S.E.
„ 15			63 9 21	. .	. .	71 59 29	.	. .	N.E. pt. of Charles's Island, S. 40 W. 55 miles.
„ 16			63 19 10	. .	. .	73 4 20		. .	Extremes of land from S. to N.E.b.N. (comp.)
									Extremes of land, S. 80. 18 E. to N. 20 W.

Aug. 17	. .	Going up Hudson's Strait.	62 51 57	. .	. .		74 38 W.	. .	Charles's Isld. from s. 64.29 E to s. 72.3 W.
„ 18	. .		62 49 37	. .	. .		75 48 51	. .	Loom of the land visible to the southward.
„ 19	. .		62 41 16	. .	. .		76 42 10	. .	Cape Walsingham, s. 76 W. Eastern extreme of land seen, s. 71.21 E.
„ 20	. .		. .	. .	. .		. .	. .	Cape Walsingham, s.w. 15 or 16 miles.
„ 21	. .		62 47 27	. .	. .		77 50 08	. .	Western extreme seen of Digg's Islds, s. 32.45 w. 15 miles.
„ 22	. .		. .	. .	62 44 26		78 55 44	. .	Beset in the ice.
„ 23	. .	.	63 3 41	. .	. .		79 57 10	. .	s.w. extreme of Southampton Isl. N. 22.28 W.
„ 24	. .	.	63 26 51	. .	. .		80 45 00	. .	Northern extreme part of Southampton Isld., N. 10.12 W. a low part W. 8 miles.
„ 25	. .	.	63 9 36	. .	. .		81 13 12	. .	Cape Pembroke, from s. 62.48 W. to s. 71.17 W. from 10 to 15 miles distant.
„ 26	. .	.	62 46 33	. .	. .		81 41 13	. .	Cape Pembroke, N. b. E. 6 or 7 miles.
„ 27	. .	.	62 29 50	. .	. .		82 48 45	. .	At anchor off Southampton Island.
„ 28	. .	.	62 7 19	. .	. .		83 6 43	. .	Low sandy point (Cary's Swan's Nest,) S.W. 6 or 7 miles.
„ 29	. .	.	. .	. .	. .		. .	. .	At anchor off the south part of Southampton Island.
„ 30	. .	.	62 14 39	. .	. .		84 29 54	. .	No land visible from the mast-head.
„ 31	. .	.	63 39.00	. .	. .		85 52 88	. .	No land seen at noon ; made an apparent isld. N.E. at 4 P.M.
Sept. 1	. .	.	63 35 48	. .	. .		86 32 00	. .	At anchor in the Bay of God's Mercy.
„ 2	. .	.	63 33 00	. .	. .		86 56 45	. .	Cape Kendall, N.W.
„ 3	W.S.S.W.	.	. .	. .	. .		. .	. .	Running along the land.

DATE.	Course.	Distance.	LATITUDE N. Mer. Altitude.	Altitude.	Dead Reck.	LONGITUDE W. Chronometer.	Lun.	Dead Reck.	Bearings, Distance, and Remarks.
Sept. 4	. .	.	° ′ ″ . .	. .	° ′ ″ . .	° ′ ″ . .	.	° ′ ″ . .	Driving in a gale; no land seen.
„ 5	. .	.	63 15 44	. .	. .	89 3 30	.	. .	No land seen.
„ 6	. .	.	63 4 44	. .	. .	89 21 41	.	. .	No land seen.
„ 7	. .	.	63 38 00	. .	. .	88 25 45	.	. .	Land about Cape Fullerton, north.
„ 8	. .	.	64 2 27	. .	. .	88 12 19	.	. .	At anchor between Whale Pt. & C. Fullerton.
„ 9	. .	.	64 15 27	. .	. .	87 43 46	.	. .	Whale Point, N. 9.50 W. 10 miles.
„ 10	. .	.	64 29 44	. .	. .	87 31 02	.	. .	American shore from S.30.40W. to N.39.19.W.
„ 11	. .	.	. .	. .	65 20 00	86 7 30	.	. .	At anchor, 4 miles from the western shore of part of Southampton Islands.
„ 12	Standing across the			Welcome	(by the	soundings	(from 20 to 50		fathoms.
„ 13	. .	.	65 20 00	. .	. .	. .	.	. .	Driving down the Welcome.
„ 14	. .	.	. .	. .	.	. .	.	. .	Running down the Welcome.
„ 15	. .	.	. .	. .	63 46 36	88 45 32	.	. .	Land from W.S.W. to N.W. (supposed C. Fullert.)
„ 16	. .	.	63 6 20	. .	. .	89 1 44		. .	
„ 17	. .	.	63 7 3	. .	. .	87 55 00	.	. .	No land seen. Lat. at 8 P.M. by * Polaris, 61° 16′ 23″.
„ 18	. .	.	. .	62 18	. .	87 12 12		. .	

Sept. 19	. .	.	. .	. .	.	. .	. .		
„ 20	. .	.	. .	. .	.	. .	. .		
„ 21	. .	.	61 21 8	. .	.	86 42 00	. .		No land seen. Lat. at 8 P.M. by ✱ Polaris, 61° 16′ 23″.
„ 22	. .	.	60 53 37	. .	.	85 47 37	. .		
„ 23	. .	.	62 21 36	. .	.	82 24 30	. .		
„ 24	. .	.	63 1 7	.	.	78 36 00	. .		
„ 25	. .	.	63 18 21	. .	.	77 13 22	. .	.	Salisbury Island from N. 27 E. to N. 59 E. Nottingham from N. 69 W. to S. 59. W.
„ 26	. Position uncertain from rapid and unknown currents						. .	.	
„ 27	. .	.	63 24 40	. .	.	73 42 70	. .	.	
„ 28	. .	.	Position uncertain (thick fog)				. .	.	
„ 29	. .	.	62 45 44	. .	.	72 24 00	. .	.	No land.
„ 30	. .	.	62 6 00	. .	.	69 35 45	. .	.	Running along the north shore of Hudson's St.
Oct. 1	. .	.	61 53 31	. .	.	67 59 38	. .	.	„ „ „ „
„ 2	. .	.	. .	. .	.	. .	. .	.	Hatton's Headland, E.b.S.¾S. North point of land seen E.b.N.
„ 3	East.	75	. .	. .	.	. .	.	62 20 00	Cape Chudleigh, W.S.W. 58 miles.
„ 4	N. 68 E.	58	61 0 14	. .	.	60 33 45	. .	.	„ „ S. 70 W. 105 miles.
„ 5	N. 70 E.	45	. .	. .	61 5 0	. .	.	59 52 00	„ „ S. 70 W. 150 miles.
„ 6	N. 71 E.	108	. .	61 41	. .	56 18 45	. .	.	Cape Desolation, S. 76 E. 191 miles.

DATE.	Course.	Distance.	LATITUDE N.			LONGITUDE W.			Bearings, Distances, and Remarks.]
			Mer. Altitude.	D. Altitude.	Dead Reck.	Chronometer.	Lun.	Dead Reck.	
Oct. 7	N. 43 W.	18	° ′ ″ . .	° ′ ″ . .	° ′ ″ 62 1 0	° ′ ″ . .	.	° ′ ″ 56 18 00	Cape Desolation, S. 72 E. 210 miles.
„ 8	S. 51 E.	30	. .	. .	61 30 00	. .	.	56 12 00	„ „ S. 78 E. 200 miles.
„ 9	N. 6 W.	30	. .	. .	62 2 00	. .	.	56 24 00	„ „ S. 72 E. 212 miles.
„ 10	N. 20 W.	10	. .	. .	63 15 00	. .	.	56 33 00	„ „ S. 70 E. 220 miles.
„ 11	S. 71 W.	72	61 35 34	. .	. .	58 43 30	.	. .	Black Bluff, on Resolution Island, west 190.
„ 12	N. 7 E.	28	. .	. .	62 00 00	. .	.	58 40 00	„ „ W.½S. 191 miles.
„ 13	North.	30	. .	. .	62 31 00	. .	.	58 40 00	„ „ S. 60 W. 195 miles.
„ 14	North.	39	. .	. .	63 00 00	. .	.	58 40 00	„ „ S. 60 W. 200 miles.
„ 15	North.	18	63 10 00	. .	. .	58 29 45	.	. .	„ „ S. 57 W. 210 miles.
„ 16	S. 30 E.	58	62 30 32	. .	. .	57 34 30	.	. .	„ „ S. 63 W. 216 miles.
„ 17	S. 3 W.	75	61 15 52	. .	. .	57 48 30	.	. .	„ „ N. 85 W. 185 miles.
„ 18	S. 30 E.	18	61 00 57	. .	. .	. .	.	57 28 00	Cape Desolation, East, 234 miles.
„ 19	S. 67 30 E.	58	60 45 16	. .	. .	55 27 30		. .	Cape Farewell, S. 78.45 E. 315 miles.
„ 20	S. 52 E.	132	59 21 9	. .	. .	52 5 18	.	. .	„ „ N. 88.45 E. 195 miles.
„ 21	S. 52 E.	130	57 47 21	. .	. .	49 8 45	.	. .	„ „ N. 40 E. 172 miles.
„ 22	S. 50 E.	26	57 20 10	. .	. .	48 13 50	.	. .	„ „ N. 40 E. 160 miles.

Oct. 23	S. 3 W.	1°	. .	. .	57 12 00	. .	48 28 00	Cape Farewell, N. 38 E. 192 miles.
„ 24	South.	18	. .	. .	56 51 00	48 28 00	. .	„ „ N. 37 E. 208 miles.
„ 25	South.	12	56 42 10	. .	. .	. .	48 28 00	„ „ N. 28 E. 210 miles.
„ 26	S. 45 E.	60	. .	56 0 0	. .	47 20 00	. .	„ „ N. 16.52 E. 230 miles
„ 27	E.S.E.	135	55 7 17	. .	. .	43 59 27	. .	Cape Clear, s. 79.28 E. 1225 miles.
„ 28	E.S.E.	112	. .	. .	54 24 23	. .	40 59 13	„ „ S. 86.58 E. 1150 miles,
„ 29	E.S.E.	90	. .	. .	53 49 59	. .	38 38 51	„ „ S. 82.7 E. 1071 miles.
„ 30	E.S.E.	115	. .	. .	53 5 47	. .	35 40 39	„ „ S. 83.50 E. 964 miles.
„ 31	S. 70 E.	104	. .	. .	52 30 11	. .	33 17 21	„ „ S. 85.38 E. 811 miles.
Nov. 1	E.S.E.	132	. .	. .	51 39 41	30 1 6	29 59 39	„ „ S. 88.44 E. 755 miles.
„ 2	E.S.E.	-	. .	51 21	. .	25 15 24	. .	„ „ East, 573 miles.
„ 3	E.b.S.	100	. .	50 57	. .	22 7 54	. .	„ „ S. 86.52 E. 476.]
„ 4	S. 72 E.	89	. .	. .	50 30 30	.	19 49 54	St. Agnes' Light, s. 85.59 E. 535 miles.
„ 5	S. 78 E.	153	. .	. .	49 59 30	. .	15 41 54	„ „ S. 89.11 E. 421 miles.
„ 6	S. 62 E.	139	48 45 26	. .	. .	12 31 34	. .	„ „ N. 74 E. 219 miles.
„ 7	. .	.	48 49 49	. .	. .	9 16 45	. .	„ „ N. 62.19 E. 137 miles.
„ 8	. .	.	49 27 16	. .	. .	6 17 15	. .	„ „ N. 1 W. 26. Lizard, N. 54 E. 50.
„ 9	. .	.	. .	. .	.	. .	. .	Start Point N.W.b.N. Berry Head, N.b.E.
„ 10	. .	.	. .	. .	. .	. .	. .	Running through the Needles.

BOTANICAL APPENDIX

BY

PROFESSOR HOOKER.

The following list of plants is drawn up from the collection of Captain Lyon. That it is not more numerous will excite no astonishment, when it is considered how scanty were the opportunities of going on shore afforded to the Expedition; and that it includes but very few species which had not rewarded the researches of the former Arctic voyagers, will also be no matter of surprise, when it is known that "the plants were all gathered upon a few low islands which were met with in, or near, the position assigned to Southampton Island;" consequently, in a country, the direct vicinity of which had been so successfully explored by the Expedition immediately previous.

The leaves of the oak which Captain Lyon found upon an iceberg near the centre of Hudson's Strait, must undoubtedly be considered as a very great curiosity, as well as the single leaf of the *common Whortle-berry* (*Vaccinium Myrtillus*;) since they may be expected to throw some light upon the origin of these vast masses of ice. The former appear unquestionably to have belonged to one of the two species of the common European oak, either *Quercus Robur* or *Q. sessiliflora*; the latter to a plant very frequent in the

northern parts of the old world, but not known to grow in the new continent, except perhaps on the west coast of North America.

The arrangement here adopted is that of the Natural Orders, similar to what is followed by Mr. Brown in the Botanical Appendix to Captain Parry's first Voyage, and to mine in the Appendix to the second Voyage, (at present unpublished,) of the same eminent navigator. As these appendices contain a more full synonymy, and remarks upon the greater number of plants which exist in this collection, and as they will be in the hands of those who are at all interested in the subject of Arctic Botany, it is not thought necessary here to repeat those remarks, nor the greater portion of those synonyms. The references are confined to the first author who named the plant, to the botanical catalogue of Ross's Voyage, and the first of Captain Parry's by the learned Brown, to Dr. Richardson's list in Captain Franklin's narrative, to mine in Captain Parry's second Voyage; and to one or more good figures, where such exist.

Whilst I have been engaged in the examination of this little collection, my valued friend Dr. Richardson has been so kind as to send me the proof sheets of his botanical appendix to the fourth and latest edition of Captain Franklin's narrative; and as this is more complete than the former, I have chosen to refer to it in preference.

DICOTYLEDONES.

PAPAVERACEÆ.

Papaver.

1. P. *nudicaule.* Linn. Sp. pl. p. 725. Fl. Dan. t. 41. Brown, in Ross's Voy. ed. 2. v. 2. p. 193. Rich. in Frankl. App. ed. 4. p. 21. Br. in Parry's 1st Voy. App. p. cclxv. Hooker in Parry's 2d Voy. App.

CRUCIFERÆ.

Draba.

2. D. *alpina*. Linn. Sp. pl. p. 896. Fl. Dan. t. 56. Brown, in Parry's 1st Voy. App. p. cclxv. Rich. in Frankl. Journ. App. ed. 4. p. 27.

Var. longipes, major, foliis pedicellisque valde elongatis.

This is a very singular variety of *Draba alpina*, with the *leaves* hairy and ciliated with branched hairs. The *scape* is about four inches long, the *pedicells* produced from throughout its whole length, the three or four lower ones distant, the rest more crowded, but all reaching nearly to the same height, so that the lowest one is almost four inches long, the uppermost very short. All of them are clothed with white, sometimes ramified, hairs. *Calyx* with a few simple, longish white hairs, nerved. *Corolla* deep yellow, *petals* marginate, nerved. *Style* rather long, a little enlarged upwards. *Stamens* with the *filaments* much dilated at the base. *Pouch* oblong, acute at each extremity, plano-compressed, with about four *seeds* in each cell.

This variety seems to come near the *Draba repens* of Bieberstein and De Candolle.

3. D. *hirta*. Linn. Sp. pl. p. 897. Wahl. Fl. Lapp. p. 175. t. 11. Rich. in Frankl. Journ. ed. 4. p. 27. Hooker in Parry's 2d Voy. App. ined.

The variety of this plant, contained in the collection, is that which in the Appendix to Parry's 2d Voyage, I have denominated

Var. 4. *tripollicaris, foliis lanceolatis subintegris, scapo plerumque monodiphyllo, una cum pedicellos calycem siliculamque, glaberrimo.*

To this I think may be referred the *Draba androsacea*, Wahl. Fl. Lapp. p. 174. t. 11. f. 5, and consequently the *D. Lapponica* of De Candolle's *Syst. Veget. v. 2. p.* 234, and

of Brown in *Parry's 1st Voyage*. Mr. Brown describes the scapes as an inch, or an inch and a half high; here they attain four or five inches. Wahlenberg's figure is rather smaller; but in other respects very characteristic.

Cochlearia.

4. C. *fenestrata*? Brown in Ross's Voy. ed. 2. v. 2. p. 193. Br. in Parry's 1st Voy. App. p. cclxvii. Hooker in Parry's 2d Voy. App. ined.

Of a *Cochlearia* there are two specimens, but having only root-leaves. These however are exactly similar to what I have seen of *C. fenestrata*; and as most, if not all, the *Cochleariæ* which I have received from the Arctic regions are referable to that species, so I think it not unlikely that this will have the same character when found in fruit.

Eutrema.

5. E. *Edwardsii*. Br. in Parry's 1st Voy. App. p. cclxvii. t. A. (excellent.) Hooker in Parry's 2d Voy. App. ined.

Arabis.

6. A. *alpina*. Linn. Sp. pl. p. 928. Fl. Dan. t. 62. Curtis in Bot. Mag. t. 226. Wahl. Fl. Lapp. p. 181. Pursh. Fl. N. Am. v. 2. p. 426.

This species does not appear to have been found in any of the previous Arctic Voyages of Discovery. I have received it, however, from Greenland. It is an inhabitant of the northern parts of the continent of North America, in Labrador (Colmaster), Lapland and Greenland. The specimen in the collection has its upper cauline leaves very broad and coarsely toothed.

7. A. *hispida*. Br. in Hort. Kew. ed. 2. v. 4. p. 106. Rich. in Frankl. Journ. App. ed. 4. ined 26. Hooker in Parry's 2d Voy. App. ined.

A. hastulata. Sm. Engl. Bot. t. 469.
Cardamine petræa Lightf. Fl. Scot. p. 347. t. 15. f. 2.
Arabis petræa, β. De Cand. Syst. Veget. v. 2. p. 229.

CARDAMINE.

8. C. *pratensis*. Linn. Sp. pl. p. 915. Sm. Engl. Bot. t. 776. Rich. in Frankl. Journ. App. ed. 4. p. 26. Hooker in Parry's 2d. Voy. App. ined.

CARYOPHYLLEÆ.

LYCHNIS.

9. L. *apetala*. Linn. Fl. Lapp. (ed. Sm.) p. 150. t. 12. f. 4. Fl. Dan. t. 305. Wahl. Fl. Lapp. p. 135. t. 7. Brown, in Ross's Voy. ed. 2. v. 2. p. 192. Rich. in Frankl. Journ. App. ed. 4. p. 18. Hooker in Parry's 2d Voy. App. ined.

STELLARIA.

10. S. *læta*. Rich. in Frankl. Journ. App. ed. 4. p. 16. Hooker in Parry's 2d Voy. App. ined.

CERASTIUM.

11. C. *alpinum*. Linn. Sp. Pl. p. 628. Sm. Eng. Bot. t. 472. Brown, in Ross's Voy. ed. 2. v. 2. p. 192. Br. in Parry's 1st Voy. App. p. cclxxi. Rich. in Frankl. Journ. ed. 4. App. ed. 4. p. 18. Hooker in Parry's 2d Voy. App. ined.

PORTULACEÆ.

MONTIA.

12. M. *fontana*. Linn. Sp. Pl. p. 129. Fl. Dan. t. 131. Sm. Engl. Bot. t. 1206. Wahl. Fl. Lapp. p. 45.

New to Arctic America; and indeed never stated to be an inhabitant of any part of that continent. It occurs in Lapland and Iceland. The specimens in this collection are not in flower.

SAXIFRAGEÆ.

Saxifraga.

13. S. *oppositifolia*. Linn. Sp. Pl. p. 775. Sm. Engl. Bot. t. 19. Brown in Ross's Voy. ed. 2. v. 2. p. 192. Br. in Parry's 1st Voy. App. p. cclxxiii. Rich. in Frankl. Journ. ed. 4. App. p. 13. Hooker in Parry's 2d. Voy. App. ined.

The flowers of the individuals in this collection are of a very large size.

14. S. *Hirculus*. Linn. Sp. Pl. p. 576. Sm. Engl. Bot. t. 1009. Brown, in Parry's 1st Voy. App. p. cclxxiii. Rich. in Frankl. Journ. App. ed. 4. p. 13. Hooker in Parry's 2d Voy. App. ined.

S. propinqua, Br. in Ross's Voy. ed. 2. v. 2. p. 576.

15. S. *tricuspidata*. "Rottb. in act. Hafn. v. 10. p. 446. t. 6. n. 21." Fl. Dan. t. 976. Brown, in Ross's Voy. ed. 2. v. 2. p. 192. Brown, in Parry's 1st Voy. App. p. cclxxiv. Rich. in Frankl. Journ. ed. 4. App. p. 13.

16. S. *rivularis*. Linn. Sp. Pl. p. 517. Sm. Engl. Bot. t. 2275. Hooker in Parry's 2d Voy. App. ined.—S. hyperborea. Brown in Parry's 1st Voy. App. p. cclxxiv.

There exist only leaves of this, intermixed with *Bryum punctatum*. These leaves have not the viscid hairs of Brown's and Richardson's *S. petiolaris*.

17. *S. nivalis*. Linn. Sp. Pl. p. 573. Fl. Dan. t. 28. Sm. Engl. Bot. t. 440. Brown, in Parry's 1st Voy. App. p. cclxxiv. Hooker, in Parry's 2d Voy. App. ined.

18. *S. cernua*. Linn. Sp. Pl. p. 557. Fl. Dan. t. 390. Sm. Engl. Bot. t. 664. Brown, in Ross's Voy. ed. 2. v. 2. p. 192. Br. in Parry's 1st Voy. App. p. cclxxv. Rich. in Frankl. Journ. ed. 4. App. p. 13. Hooker, in Parry's 2d Voy. App. ined.

Chrysosplenium.

19. *C. alternifolium*. Linn. Sp. Pl. p. 569. Fl. Dan. t.

336. Sm. Engl. Bot. t. 54. Brown, Parry's 1st Voy. App. p. cclxxv. Rich. in Frankl. Journ. ed. 4. App. p. 13. Hooker, in Parry's 2d Voy. App. ined.

ROSACEÆ.

Dryas.

20. *D. integrifolia.* Vahl. in Act. Hafn. v. 4. P. II. p. 172. Fl. Dan. t. 1216. Brown, in Ross's Voy. ed. 2. v. 2. p. 193. Br. in Parry's 1st Voy. App. p. cclxxvi. Rich. in Frankl. Journ. ed. 4. App. p. 21. Hooker in Parry's 2d Voy. App. ined. Draba tenella. Pursh. Fl. N. Am. v. 1. p. 350.

I have already stated it as my opinion, that this is only a variety of *Dryas octopetala.* All the intermediate states of the two species are found in the Arctic Regions.

COMPOSITÆ.

Chrysanthemum.

21. C. *integrifolium.* Rich. in Frank. Journ. ed. 4. App. p. 33. Hooker, in Parry's 2d Voy. App. ined.

Pyrethrum.

22. P. *grandiflorum*, foliis (omnibus) bipinnatifidis laciniis linearibus acutis, caule unifloro. Hooker, in Parry's 2d Voy. App. ined.

This interesting plant was first discovered during Captain Parry's 2d Voyage, at Repulse Bay, Fern Island and Neerlo-Nakto.

VACCINEÆ.

Vaccinium.

23. V. *uliginosum.* Linn. S. Pl. p. 499. Sm. Engl. Bot. t. 581. Fl. Dan. t. 231. Rich. in Frankl. Journ. ed. 4. App. p. 12. Hooker, in Parry's 2d Voy. App. ined.

24. V. *Myrtillus.* Linn. Sp. Pl. p. 498. Fl. Dan. t. 974. Sm. Engl. Bot. t. 456.

Of this plant there is but a single leaf, which was found on an iceberg in the middle of Hudson's Strait, along with some foliage of a *Quercus;* nevertheless there can be, I think, no doubt of its belonging to our common Whortleberry. This species of *Vaccinium* has never been given as a certain inhabitant of North America. It was not found by Captain Franklin, nor by any of our Arctic voyagers, nor is it included in Pursh's or Nuttall's Floras of America; but Sir J. E. Smith, under the article of *V. Myrtillus*, in Rees' Cyclopædia, observes, "Mr. Menzies brought from the west coast of America what we can scarcely consider more than a gigantic variety of this plant, seven or eight feet high, larger in every part, with less distinctly serrated leaves." To such an individual, however, the leaf in question can hardly have belonged as it is unusually small. On the continent of Europe, the *common Whortleberry* extends throughout all Lapland, and it is common in Iceland. I have not seen it in any collection of Greenland plants, although Egede states that it is found in that country. In Pennant's Arctic Zoology it is given as an inhabitant of Nootka Sound.

ARBUTUS.

25. A. *alpina.* Linn. Sp. Pl. p. 566. Fl. Dan. t. 75. Sm. Engl. Bot. t. 2039. Lightf. Fl. Scot. p. 215. t. 11. f. a. b. Rich. in Frankl. Journ. ed. 4. App. p. 38. Hooker, in Parry's 2d Voy. App. ined.

The berries of this plant in North America, Dr. Richardson tells us, are very juicy and pleasant. They are hoarded up by the different kinds of marmot, and form the autumnal food of the *Anas hyperborea.*

EMPETRUM.

26. E. *nigrum.* Linn. Sp. Pl. p. 1450. Sm. Engl. Bot. t.

526. Fl. Dan. t. 975. Brown, in Ross's Voy. ed. 2. v. 2. p. 194. Rich. in Frankl. Journ. ed. 4. App. p. 38. Hooker, in Parry's 2d Voy. App. ined.

SCROPHULARINÆ.

Pedicularis.

27. P. *hirsuta*. Linn. Sp. Pl. p. 847. Fl. Lapp. (ed. Sm.) p. 211. t. 4. f. 3. Fl. Dan. t. 1105. Brown, in Ross's Voy. ed. 2. v. 2. p. 193. Rich. in Frankl. Journ. ed. 4. App. p. 25. Hooker, in Parry's 2d Voy. App. ined.

POLYGONEÆ.

Polygonum.

28. P. *viviparum*. Linn. Sp. Pl. p. 516. Fl. Dan. t. 13. Sm. Engl. Bot. t. 669. Brown, in Parry's 1st Voy. App. cclxxxii. Rich. in Frankl. Journ. ed. 4. App. p. 13. Hooker, in Parry's 2d Voy. App. ined.

AMENTACEÆ.

Salix.

29. S. *reticulata*. Linn. Sp. Pl. p. 1446. Fl. Dan. t. 212. Sm. Eng. Bot. t. 1908. Rich. in Frankl. Journ. ed. 4. App. p. 37. Hooker, in Parry's 2d Voy. App. ined.

30. S. *arctica*. Brown, in Ross' Voy. ed. 2. v. 2. p. 194. Br. in Parry's 1st Voy. App. p. cclxxxii. Rich. in Frankl. Journ. App. ed. 4. p. 37. Hooker, in Parry's 2d Voy. App. ined.

S. n. 37. Hooker, in Scoresby's E. Coast of W. Greenland. App. p. 414.

Quercus.

31. Quercus, *Robur* ?

The extremity of a branch, with four small leaves of a *Quercus*, were discovered along with the leaf of *Vaccinium Myrtillus*, on an ice island, in the centre of Hudson's Strait. These leaves have the most entire resemblance to those of our *Quercus Robur* and *sessiliflora*, but being without either flower or acorns, it would be impossible to say to which of these two species it had belonged. To one of them, however, I think it may, with tolerable certainty, be said that they do belong. I have in vain endeavoured to discover any resemblance between them and the foliage of any American oak in my collection; nor are either of the common European oaks mentioned as natives of the American Continent. In a pamphlet that Mr. Winch has published upon the geographical distribution of plants, it is stated that the river Dal, in Sweden, in latitude 60° 30″ North, and Christiana, in Norway, in lat. 59° 56″, are the northern limits of the growth of oak in Europe. The same author observes, that the oaks which he noticed on the banks of the Gotha, in lat. 58°, were of a very diminutive size. The oak is excluded from the *Flora Lapponica*, nor does it grow in Iceland. On the eastern limits of Siberia, however, it is found; but I shall give what is stated on this subject in the *Flora Sibirica* of Gmelin (v. 1. p. 150,) in that author's own words. "Audivi nasci in orientali Arguni fluvii ripa, viginti circiter leucas à fluvio, in Sinicis finibus, quo ire non licuit. Dicunt etiam ad Anurem fluvium copiose nasci. Aliis locis in Sibiria hæc arbor non occurrit, etsi in Casanensi regno frequentissima, quin etiam in tota fere Russia non raro inventu est."

MONOCOTYLEDONES.

CYPERACEÆ.

CAREX.

32. C. *incurva*. Lightf. Fl. Scot. p. 544. t. 24. f. 1. Sm. Engl. Bot. t. 927. Fl. Dan. t. 432. Wahl. Fl. Lapp. p. 226.

Not enumerated in any account of the plants of America, but an inhabitant of the north of Britain and of Europe generally.

33. C. *membranacea*, spica mascula subsolitaria, femineis magis minusve nitidis pedicellatis oblongo-cylindraceis erectis obtusis (atro-fuscis), fructu lævi rotundato inflato breviter acuminato bifido pedunculato, vaginis perbrevibus. Hooker, in Parry's 2d Voy. App. ined.

This species was found in Duke of York's Bay, during Captain Parry's Second Voyage.

ERIOPHORUM.

34. E. *capitatum*. Host. Gram. Austr. t. 38. Sm. Engl. Bot. t. 2387. Fl. Dan. t. 1502. Brown, in Parry's 1st Voy. App. p. cclxxxix. Hooker, in Parry's 2d Voy. App. ined.

E. Scheuchzeri, Roth in Sims' Ann. of Bot. v. 1. p. 149.

35. E. *angustifolium*. Hoffm. Fl. Germ. ed. 1. v. 1. p. 19. Sm. Engl. Bot. t. 364. Fl. Dan. t. 1447. Brown, in Parry's 1st Voy. App. p. cclxxxiv. Rich. in Frankl. Journ. ed. 4. App. p. 31.

E. polystachion, Curt. Fl. Lond. ed. 1.

GRAMINEÆ.

DUPONTIA.

36. D. *Fischeri*. Brown, in Parry's 1st Voy. App. p. ccxci. Hooker, in Parry's 2d Voy App. ined.

AIRA.

37. A. *aquatica*. Linn. Sp. Pl. p. 95. Fl. Dan. t. 381. Sm. Engl. Bot. t. 1557. Rich. in Frankl. Journal. ed. 4. App. p. 3.

Catabrosia aquatica. Beauv. Rœm. et Schultz. v. 2. p. 696.

In the only specimen of this plant the leaves are deep purple; the calyces 3—4 flowered. This was not found during any of the foregoing Arctic voyages, but was met with by Dr. Richardson in the woody country of North America, between lat. 54° and 64°.

ALOPECURUS.

38. A. *alpinus*. Sm. Engl. Bot. t. 1126. Brown, in Ross' Voy. ed. 2. v. 2. p. 191. Rich. in Frankl. Journ. ed. 4. App. p. 3. Brown, in Parry's 1st Voy. App. p. cclxxxiv. Hooker, in Parry's 2d Voy. App. ined.

COLPODIUM.

39. C. *latifolium*. Brown, in Parry's 1st Voy. App. p. cclxxxvi. and p. cccix. Hooker, in Parry's 2d Voy. App. ined.

POA.

40. P. *laxa*. Willd. Sp. Pl. v. 1. p. 386. Wahl. Fl. Lapp. p. 40. Hooker. Fl. Scot. p. 34.

P. flexuosa. Sm. Engl. Bot. t. 1123.

This is somewhat different from the P. *artica* of Brown, yet I fear that the two species are but too closely allied.

FESTUCA.

41. F. *brevifolia*. Brown, in Parry's 1st Voy. p. cclxxxix. Hooker, in Parry's 2d Voy. App. ined.

ELYMUS.

42. E. *arenarius*. Linn. Sp. Pl. p. 122. Fl. Dan. t. 847. Sm. Engl. Bot. t. 1672. Hooker, in Parry's 2d Voy. App. ined.

ACOTYLEDONES.

MUSCI.

Splachnum.

43. S. *vasculosum*. Hedw. St. Cr. v. 2. t. 15. Hooker and Tayl. Musc. Brit. p. 21. S. rugosum, Sm. Engl. Bot. t. 2094?

No fruit was found upon this moss.

Didymodon.

44. D. *capillaceum*, β. *statura humiliore, foliis strictioribus et brevioribus*. Brown, in Parry's 1st Voy. App. p. ccxcvii. Hooker, in Parry's 2d Voy. App. ined.

D. subulatum Schkuhr Deutsch. Moos. p. 65. t. 28.

Small steril stems of this are among the specimens of agaricus ericetorum.

Hypnum.

45. H. *cuspidatum*. Linn. Sp. Pl. p. 1595. Sm. Engl. Bot. t. 2407. Hooker and Tayl. Musc. Brit. p. 107. t. 26. Hooker, in Parry's 2d Voy. App. ined.

This moss is without fructification.

46. H. *aduncum*. Linn. Sp. Pl. p. 1592. Sm. Engl. Bot. t. 2073. Hooker and Tayl. Musc. Brit. p. 111. t. 26. Brown, in Parry's 1st Voy. App. p. ccxcv. Hooker, in Parry's 2d Voy. App. ined.

Not in fructification.

Bryum.

47. B. *cæspititium*. Linn. Sp. Pl. p. 1586. Sm. Engl. Bot. t. 1904. Hooker and Tayl. Musc. Brit. p. 121. t. 29. Rich. in Frank. Journ. ed. 1. App. p. 756 Hooker, in Parry's 2d Voy. App. ined.

"This has abundance of fructification, and belongs to that variety which I have mentioned in Parry's 2d Voyage, "fo-

liis rotundato-ovatis acuminatis concavis, capsula brevi pyriformi."

48. B. *turbinatum*. Sw. Musc. Suec. p. 49. Sm. Engl. Bot. t. 1572? Hooker and Tayl. Musc. Brit. p. 122. t. 29. Hooker, in Parry's 2d Voy. App. ined.

This moss is destitute of fructification.

49. B. *punctatum*. Schreb. Fl. Lips. p. 85. Sm. Engl. Bot. t. 1183. Hooker and Tayl. Musc. Brit. p. 124. t. 30. Hooker, in Parry's 2d Voy. App. ined.

The specimens are not in fructification.

HEPATICÆ.

Marchantia.

50. M. *polymorpha*. Linn. Sp. Pl. p. 1603. Sm. Engl. Bot. t. 210. Hooker, in Parry's 2d Voy. App. ined.

No fruit: the fronds are singularly broad.

LICHENES.

Cornicularia.

51. C. *aculeata. var. δ. muricata*. Acharius Syn. Lich. p. 300.

C. muricata. Ach. in Nov. act. Holm. v. 22. p. 544. t. 4 f. 5. Hooker, in Parry's 2d Voy. App. ined.

Cetraria.

52. C. *nivalis*. Ach. Syn. Lich. p. 228. Hooker, in Parry's 2d Voy. App. ined.

Lichen nivalis. Sm. Engl. Bot. t. 1994.

FUNGI.

Agaricus.

53. A. *ericetorum*. Pers. Syn. Fung. p. 472. Fries. Syst. Mycol. v. 1. p. 165. Grev. Fl. Edin. p. 384.

THE END.

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LONDON:
Printed by WILLIAM CLOWES,
Northumberland court.

00084860

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on 01 January, 2016